

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND**

G. W. ARU, LLC, *et al.*

*

Plaintiffs,

*

v.

*

Civ. No. JKB-22-2636

W. R. GRACE & CO.-CONN.,

*

Defendant.

*

* * * * *

MEMORANDUM

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Plaintiffs G. W. Aru, LLC and Cochise Technology, LLC (collectively, “GWA”) sued W. R. Grace & Co.-Conn. (“Grace”) for patent infringement and false advertising. The Court held a bench trial in May and June 2025. This Memorandum constitutes the Court’s findings of fact and conclusions of law under Federal Rule of Civil Procedure 52(a)(1).

For the following reasons, judgment will be entered in favor of Grace.

I. BACKGROUND AND PROCEDURAL HISTORY

The Court begins with a brief history of the case, including key issues resolved to this point.

GWA initiated this lawsuit by filing a complaint in this Court in October 2022 (ECF No. 1); the operative amended complaint was filed a few months later, in January 2023 (ECF No. 18). The complaint brings two claims: Count I alleges patent infringement in violation of 35 U.S.C. § 271(a); Count II alleges false advertising in violation of the Lanham Act, 15 U.S.C. § 1125(a)(1).

GWA and Grace both sell to refineries products called CO-to-CO₂ combustion promoters. At a high level, GWA claims that Grace copied GWA’s patented combustion-promoter technology while embarking on an advertising campaign that falsely inflated the performance of Grace’s products and denigrated GWA in the eyes of potential buyers. (*See generally* ECF No. 18.)

This case has been vigorously litigated since the beginning and the Court has had occasion to issue at least a dozen substantive pretrial rulings along the way. The most important moments in the life of this case are described below:

A. PRETRIAL LITIGATION

First, in October 2023, the Court held a claim-construction hearing, pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), and issued its constructions of disputed terms of the patent-in-suit, U.S. Patent No. 11,224,864 (the ’864 Patent). (ECF No. 110), *reproduced as*

G. W. Aru v. W. R. Grace & Co.-Conn., 700 F. Supp. 3d 325 (D. Md. 2023) [hereinafter *GWA I*].

Second, in December 2023, the Court issued a limited preliminary injunction against Grace. (ECF No. 128-1 at 64–70 (bench ruling); ECF No. 123 (order).) That preliminary injunction barred Grace from disseminating advertisements stating that its combustion promoters have a higher proportion of noble metals at the outer surface of its Optimized CPP (“OCPP”) product.¹ (ECF No. 123.)

Third, in December 2024, after the parties had completed discovery, the Court issued an opinion granting in part and denying in part each party’s cross-motion for summary judgment. (ECF Nos. 223 (sealed memorandum), 224 (order)); *see also* (ECF No. 231 (unsealed, redacted memorandum)), *reproduced as G. W. Aru, LLC v. W. R. Grace & Co.-Conn.*, 761 F. Supp. 3d 827 (D. Md. 2025) [hereinafter *GWA II*].

Fourth, in advance of trial, the Court entertained and resolved motions to exclude expert witness testimony pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). (ECF Nos. 270 (memorandum), 71 (order).) It also resolved other motions *in limine*. (ECF Nos. 295 at 6–13 (bench ruling), 297 (order).)

B. TRIAL AND POST-TRIAL PROCEEDINGS

The bench trial began on May 27, 2025, and lasted for eight days over three weeks, concluding on June 11. Trial was divided into two phases, with the first (and by far longer) phase focusing on questions of liability (except for Lanham Act injury) and the second phase focusing on injury and remedies. (*See* ECF No. 297.) The Court heard testimony from twenty-four

¹ On May 25, 2025, the parties stipulated to an order dissolving the preliminary injunction. (ECF No. 304.) Accordingly, the Court dissolved the preliminary injunction as of May 28, 2025. (ECF No. 308.)

witnesses over the course of both phases.²

² Every trial exhibit was denominated as either PTX, DTX, or JTX, depending on whether the parties considered it to be Plaintiffs' exhibit, Defendant's exhibit, or a joint exhibit. Trial exhibits are not available on ECF. Instead, on the Court's instructions, the parties have submitted to Chambers a USB drive containing all such exhibits. The Clerk's Office staff will be directed to maintain custody of the USB drives at the conclusion of this case; the Court also expects the parties to retain all such information.

All live, in-person statements made in Court during the trial (including live witness testimony, legal argument, and statements by the Court) are contained in the trial transcripts. The transcripts are divided into Volumes I through VIII, with each volume corresponding to a single trial day. When a citation to a trial transcript volume is available, the Court will cite to that rather than to the Court's electronic record (ECF). For ease of reference however, the corresponding ECF citations for each volume of trial testimony is as follows:

Trial Volume	ECF Number
I	312
II	313
III	314; 315 (sealed excerpt)
IV	316
V	335
VI	336
VII	327
VIII	328

Some of the testimony came in the form of video replays of previously taped depositions. The Court Reporter did not transcribe deposition testimony, and this testimony is not available in the trial transcripts. Instead, per the Court's instructions, the parties prepared and docketed certified transcripts of the deposition testimony of eight witnesses who appeared by deposition (Larsen, Sexton, Tierney, Federspiel, Colmone, Ziebarth, Sagaser, Lewis), with the transcripts being designated as JTX 100 through JTX 107. (ECF No. 334.) Additionally, there were brief videos played at trial from the depositions of Mr. Aru and of Mr. Santos. Transcripts of these two depositions were not docketed; instead, they are available only on the USB drive that the parties submitted to the Court.

The USB drive also contains alternative transcriptions of the depositions of the eight witnesses whose testimony is transcribed in ECF No. 334. The pagination of the USB-drive transcripts of these depositions differs from the pagination of the ECF No. 334 transcripts. All citations to deposition testimony transcribed in ECF No. 334 will be to the native pagination of the deposition transcript in ECF No. 334, *not* to the native pagination of the deposition transcript contained on the USB drive, *nor* to the ECF pagination.

The parties have jointly stipulated to the admission of a numbered set of facts. (See ECF No. 278 at 7–11.) Citations to a jointly stipulated fact will be in the form “Stip. [number].”

Finally, references to the trial transcript will be in the form “(Vol. [number] at [page number].),” with an added parenthetical identifying the witness who testified, if not obvious from context. References to deposition testimony will be in the form “[Witness] Dep. at [page number].”), with the page number

At the conclusion of Phase I of trial, the Court issued a ruling from the bench pursuant to Federal Rule of Civil Procedure 52(c), holding that GWA had failed to prove patent infringement and that accordingly Grace was entitled to judgment in its favor as to Count I of the Amended Complaint. (Vol. VII at 38–46; *see also* ECF No. 330 (order).) The Court held in abeyance any decision as to GWA’s Lanham Act claim.

In accordance with the Court’s directions (*see* ECF No. 330), the parties have submitted post-trial briefs, including proposed findings of fact and conclusions of law. The matter is now fully briefed and ripe for decision.

The Court begins in Part II by reproducing and supplementing the ruling it made from the bench disposing of GWA’s patent claim. Parts III and IV contain the Court’s findings of fact and conclusions of law, respectively, with respect to the Lanham Act claim. Part V concludes.

Finally, several non-dispositive motions are also pending; they will either be granted or be denied as moot.³

II. RULING ON THE PATENT CLAIM

The Court ruled on GWA’s patent claim from the bench during trial, finding in favor of Grace. (*See* Vol. VII at 38–45.) The Court reproduces here that oral ruling, which the Court has supplemented and modified.

referring to the native pagination of the deposition transcript rather than to the ECF pagination. Trial exhibits will be cited with the format “(JTX [number] at [page number].)” Other citations to the electronic record will be in the form of “(ECF No. [number] at [page number].)”

³ More specifically: GWA’s Second Motion for Preliminary Injunction (ECF No. 211) will be denied as moot. The pending motions to seal (ECF Nos. 280, 289) will be granted, as they seek to apply appropriately narrow redactions consistent with the First Amendment and common-law rights of access (*see* ECF No. 207 at 2–3; ECF No. 81 at 2–3). Finally, Grace’s counterclaims for declaratory judgment of invalidity and non-infringement of the ’864 Patent (*see* ECF No. 25 at 23–26) will be dismissed as moot. (*See* ECF No. 295 at 13–14.)

A. *LEGAL STANDARD FOR RULE 52(C)*

Federal Rule of Civil Procedure 52(c) provides:

If a party has been fully heard on an issue during a nonjury trial and the court finds against the party on that issue, the court may enter judgment against the party on a claim or defense that, under the controlling law, can be maintained or defeated only with a favorable finding on that issue. The court may, however, decline to render any judgment until the close of the evidence. A judgment on partial findings must be supported by findings of fact and conclusions of law as required by Rule 52(a).

And Rule 52(a) states, in relevant part:

In an action tried on the facts without a jury or with an advisory jury, the court must find the facts specially and state its conclusions of law separately. The findings and conclusions may be stated on the record after the close of the evidence or may appear in an opinion or a memorandum of decision filed by the court.

The procedural posture of Rule 52(c) does not meaningfully change the nature of the Court's fact-finding role under Rule 52(a). The Court weighs the evidence, resolves any conflicts in it, assesses the credibility of witnesses, and "decide[s] for itself in which party's favor the preponderance of the evidence lies." 9C *Wright & Miller's Federal Practice & Procedure* § 2573.1 (3d ed. 2025).

B. *STANDARD FOR PATENT INFRINGEMENT*

"Infringement is assessed by comparing the accused device to the claims; the accused device infringes if it incorporates every limitation of a claim" *MicroStrategy Inc. v. Bus. Objects. S.A.*, 429 F.3d 1344, 1352 (Fed. Cir. 2005) (alteration accepted). "To prove infringement, a patentee must show that a defendant has practiced each and every element of the claimed invention." *Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1060 (Fed. Cir. 2009) (internal quotation marks and citation omitted). The Court measures the accused product against the claims of the patent, as previously construed by the Court. *Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1350 (Fed. Cir. 2022).

Infringement can either be “literal” (*i.e.*, the challenged product or method exactly maps onto the patent claim) or, in “exceptional” cases, be proven through the “doctrine of equivalents.” *NexStep, Inc. v. Comcast Cable Commc’ns, LLC*, 119 F.4th 1355, 1370 (Fed. Cir. 2024). GWA has not developed any argument at trial for infringement under the doctrine of equivalents, so the Court understands it to be proceeding solely under a theory of literal infringement.

Plaintiffs bear the burden of proving patent infringement by a preponderance of the evidence. *Siemens Med. Sols. USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1279 (Fed. Cir. 2011).

C. **FACTUAL FINDINGS⁴**

GWA and Grace both offer products to petroleum refineries. The Court begins by providing is a brief overview of the refinery process, the role of combustion promoters, and the nature of the ’864 Patent. It then turns to a discussion of the evidence on patent infringement.

1. Petroleum Refining and Combustion Promoters

Petroleum refining involves processes of converting large hydrocarbon molecules in crude oil into smaller hydrocarbon molecules having lower boiling points, which form useful products like gasoline and gases. (Stip. 1.)⁵

Fluid catalytic cracking (“FCC”) processes are used in petroleum refineries to convert crude oils into gasoline and other products. (Stip. 2.)

In FCC processes, high molecular weight hydrocarbons are heated to high temperatures

⁴ To the extent relevant, all factual findings made in the Court’s discussion of the Lanham Act claim, *see infra* Part III, apply here as well. Likewise, the findings in this Part apply to the Lanham Act claim with equal force.

⁵ The Court accepts as true all jointly stipulated facts. (See ECF No. 278 at 7–11.)

under pressure, and mixed with cracking catalyst particles, which break the large hydrocarbons into smaller hydrocarbons—hence the name “cracking.” Catalysts are substances that cause chemical reactions to occur more efficiently and/or rapidly without being consumed in the reactions they catalyze. (Stip. 3.)

An effect of the “cracking” chemical reactions is the formation of carbon, or “coke,” on FCC particles, which eventually deactivates their catalytic capabilities. So-called “coked” catalyst is then reactivated in a regeneration process so that it can be reused. The catalyst-regeneration process uses hot air to burn off the coke from the catalyst particles in a regenerator chamber, forming carbon monoxide (CO) as a byproduct and producing heat that in turn is used in further cracking reactions with the regenerated catalyst. (Stip. 4.)

The oxidation of CO is a highly exothermic (*i.e.*, heat-generating) process. This can result in CO “afterburning.” Afterburning can cause significant damage to FCC equipment and can be reduced by more complete oxidation of CO to carbon dioxide (CO₂) in the catalyst bed. (Stip. 5.)

Additives, such as CO-to-CO₂ combustion promoters (or, simply, “combustion promoters”), play a role in FCC processes. (Stip. 6.) Combustion promoters can help control afterburn and reduce emissions from FCC facilities. (Stip. 7.) From a scientific standpoint, additives are often catalysts themselves, but in the industry, the terms “catalyst” and “base catalyst” generally refer to only the particles that perform the cracking function, not to additives like combustion promoters that provide more ancillary functions. (*See, e.g.*, Vol. II at 23.)

Combustion promoters are made of porous support particles impregnated with noble metals, such as platinum and palladium. In conventional combustion promoters, the intended design is for noble metal to be distributed homogenously through the support particles. (Stip. 8.)

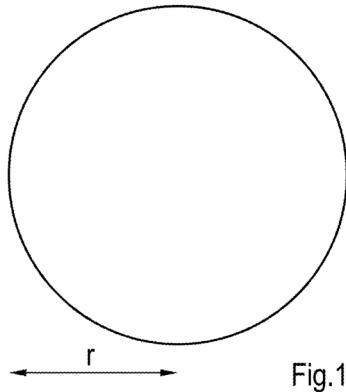
Combustion promoters are generally made by impregnating noble metals onto a porous

particle base. The noble metal is typically dispersed on a porous alumina particle by impregnating a noble metal salt in an aqueous solution onto the particle. Because the alumina base has pores throughout the particle, the noble metal will also be distributed throughout the entire particle. (Stip. 12.)

2. The '864 Patent

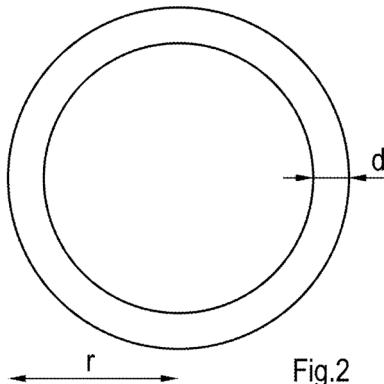
On January 18, 2022, the United States Patent Office issued the '864 Patent, naming Guido Aru as the inventor and Cochise as the assignee. (Stip. 30.)

The objective of the '864 Patent is “to provide a CO to CO₂ combustion promoter which requires less noble metal to achieve the same level of CO combustion in the FCC process.” '864 Patent at 2:17–20. As noted above, traditionally, CO-to-CO₂ combustion promoters have featured a uniform or homogenous distribution of noble metals throughout the support particle. Figure 1 of the '864 Patent, reproduced below, shows a schematic of a cross section of a state-of-the-art combustion promoter particle featuring the traditional homogenous distribution of noble metals.



The purported key innovation of the '864 Patent is the disclosure of an “eggshell” distribution for noble metals in a combustion promoter particle, as opposed to the traditional homogenous distribution. In the eggshell design featured in the patent-in-suit, the noble metals

are concentrated toward the surface of the combustion promoter particle, rather than being evenly distributed throughout. Figure 2 of the '864 Patent, reproduced below, shows a schematic of a cross section of the claimed combustion promoter particle. The region that appears to be an outer ring around the circle is described as the “outer eggshell” of the particle, which has a thickness (d) that may range between 1 to 10 microns. '864 Patent at 11:21–27. This outer eggshell contains “almost all” of the noble metals. *Id.*



The specification teaches that the claimed invention can be made by mostly filling the pores of the base particle with a filler material such as water or oil, then introducing the particles to an aqueous solution containing the noble metals, then drying or calcinating the particle. '864 Patent at 8:43–57. This process creates a particle in which the noble metals are distributed mostly toward the surface of the particle, similar to how an eggshell is located toward the surface of an egg.

According to GWA, the advantage of the claimed eggshell design is that it “greatly reduces the amount” of noble metals that must be added to the combustion promoters, which is beneficial because noble metals are “very expensive.” (ECF No. 18 at 14, 9.) In essence, GWA’s theory is that the conventional homogenous distribution of noble metals leads to wasted noble metal in the middle of the support particle, where it will never have the opportunity to perform its task of

promoting the combustion of CO into CO₂. '864 Patent at 3:2–13. GWA also contends that the eggshell design inherently results in reduced emissions of nitrogen oxides (“NOx”), which are environmentally harmful pollutants that are heavily regulated. (ECF No. 18 at 9, 11).)

Claim 1 of the '864 Patent, the sole independent claim, recites as follows:

What is claimed herein is:

1. A CO to CO₂ combustion promoter comprising microsphere sized porous particles, each microsphere sized porous particle having a diameter of less than 1 mm, and independently comprising:

silica, alumina, or mixtures thereof; and

one or more Group VIII noble metals distributed in the particle as an eggshell such that a higher concentration of the one or more Group VIII noble metals is present in the outer region of the microsphere sized porous particle as compared to the concentration of the one or more Group VIII noble metals in the centre of the microsphere sized porous particle.

'864 Patent at 14:45–57.

The Court construed the disputed claims of the '864 Patent in its claim-construction order dated October 31, 2023. *GWA I*, 700 F. Supp. 3d at 353–54.

Count I of the operative Amended Complaint (ECF No. 18) alleges that Grace's OCPP infringes the claims of the '864 Patent. The crucial issue for GWA's patent claim is whether OCPP satisfies the requirement of Claim 1 of the '864 Patent that “each” particle of OCPP meets the “eggshell” requirement.

The Court has construed “each” to mean “every one of the microsphere sized particles considered individually.” *GWA I*, 700 F. Supp. 3d at 353. For the purposes of this ruling, the Court assumes, without deciding, that a showing that at least ninety percent of particles in a representative sample meet the eggshell requirement would suffice to meet the “each” requirement.

The Court has construed “eggshell” to mean “a structure with an outer layer or shell

surrounding an inner layer that is chemically distinct from the outer layer.” *GWA I*, 700 F. Supp. 3d at 353.

3. Infringement Findings

The main evidence offered by GWA in support of its claim for patent infringement was the testing and analysis done by Dr. Natalie Herring (*see generally* Vol. V at 84–235; Vol. VI at 8–21), including a series of charts from her report purportedly showing that all thirty OCPP particles she tested had an eggshell distribution (PTX 411-E).⁶

The Court finds that Dr. Herring’s testing does not establish, by a preponderance of the evidence, that Grace’s OCPP meets the “each” requirement of the ’864 Patent, for the following reasons:⁷

First, Dr. Herring had never done laser-ablation testing before this litigation (Vol. V at 96–97), and this undermines the Court’s confidence in the reliability and accuracy of her tests.

Second, Dr. Herring has substantial financial and professional interests in the outcome of this case, which compromises her objectivity. (*See* Vol. V at 6 (Mr. Aru testifying that Dr. Herring

⁶ Dr. Herring is GWA’s director of technology and business development. Dr. Herring has a Ph.D. in chemistry. (Vol. V at 84–86.) At trial, Dr. Herring testified as an expert for GWA in the field of fluid catalytic cracking (“FCC”) catalysts and additives and analysis of the same. (*Id.* at 125.)

⁷ The Court’s findings on the deficiency on Dr. Herring’s testing are informed, in part, by the testimony of Grace’s expert on patent infringement, Dr. Michael Harold. (*See generally* Vol. VI at 163–277.) Dr. Harold is a professor of chemical engineering at the University of Houston, where he has taught for the last twenty-five years. From 2010 to 2020, he was the editor-in-chief of the main research journal for the American Institute of Chemical Engineers. (Vol. VI at 164–67.) At trial, Dr. Harold testified for Grace as an expert in the topics of chemical engineering and FCC-reaction technology. (*Id.* at 187.) The Court found persuasive many of Dr. Harold’s criticisms of Dr. Herring’s report, such as his opinion that the lack of an error analysis makes it impossible to draw any meaningful conclusions about Dr. Herring’s testing. But Dr. Harold’s credibility was somewhat diminished by various errors he made as well as his implausible claim to have reviewed both of GWA’s expert reports and written his own sixty-five-page rebuttal report in ten hours. However, the Court is satisfied—based on Dr. Harold’s credentials, extensive experience, and demeanor on the witness stand—that he is highly knowledgeable about the subjects on which he opined, and that the errors were the result of sloppiness rather than a lack of substantive expertise. Accordingly, the Court accords substantial weight to his testimony.

has a three-percent ownership interest in GWA); *id.* at 14–17 (Mr. Aru testifying that Dr. Herring receives fifteen percent of every royalty payment made by G. W. Aru, LLC to Cochise for sales of its combustion promoter); *id.* at 44 (Mr. Aru testifying that Dr. Herring is the only employee of G. W. Aru, LLC aside from himself).) To be sure, she has impressive credentials and the Court believes her testimony was truthful. But, her biases likely made her see what she wanted to see in the data.⁸ For this reason, the Court discounted the weight it accorded to her testimony.

Third, Dr. Herring did not adequately explain several parameters that she used in setting up the testing of OCPP. For instance, she did not adequately explain why she tested only OCPP particles that were smaller than average. (*See* Vol. V at 136, 138–39 (Dr. Herring testifying that the average size of the OCPP particles in the batch she received was eighty-three microns, but that she tested particles only within the size range of sixty-three to seventy-five microns).) She also did not adequately explain why she chose to use a laser with a wavelength of 193 nanometers for the laser-ablation testing. (*See* Vol. VI at 102–03.) Without adequate explanation of these testing parameters, the Court (which has no scientific expertise in this field) has no way of knowing whether the results would have been different had different parameters been chosen.

Fourth, looking at the charts from Appendix E to Dr. Herring’s report, the Court does not find that they establish that more than approximately twenty out of thirty of the particles have an

⁸ The Court accredits Dr. Herring’s testimony that her professional reputation is important to her and that she would not compromise her professional integrity to help GWA win the case. (Vol. V at 87–88.) Again, the Court does not believe that Dr. Herring lied. Rather, the issue is that her substantial personal and professional stake in this litigation meant that Dr. Herring had a strong, perhaps unconscious motivation to conduct her testing and interpret the data in the way that was most helpful for GWA, rather than to in the way that was most consonant with objective scientific inquiry. Of course, there is some possibility of bias for Dr. Harold, too, since he has been retained as a (presumably paid) expert for Grace. But providing expert testimony is a relatively minor facet of Dr. Harold’s career (*see* Vol. VI at 167–68), whereas working for GWA is essentially the entirety of Dr. Herring’s current career. That means the stakes (and, thus, the risk for bias) are much higher for Dr. Herring than they are for Dr. Harold.

eggshell distribution. (*See generally* PTX 411-E.) Although in each chart at least one of the two outermost points appears to show a slightly higher relative concentration of palladium as compared to the inner points, in many instances the difference reflected on the chart is so minuscule as to be barely discernable by the naked eye. This problem is compounded by the lack of any numerical data (beyond the graphs themselves) showing the actual relative concentrations calculated. (*See, e.g.*, Vol. V at 106–10.)⁹

Although, under the terms of the '864 Patent, *any* detectable difference in concentration would be enough to meet the eggshell distribution, there was no error analysis done, so the Court cannot conclude whether the very slight differences in relative concentrations were statistically significant or if they could have been the result of chance.

Fifth, because the testing reflected only relative concentrations of palladium to alumina (*see* Vol. VI at 9, 11 (Dr. Herring)), and because there was some question whether the alumina concentration was constant throughout a promoter particle (*see id.* at 11–14; Vol. VI at 231 (Harold)), the Court is not confident that a higher concentration of palladium relative to alumina necessarily also means that there is a higher *absolute* concentration of palladium in the outer region as opposed to the center.

Sixth, Dr. Herring tested only thirty particles (Vol. V at 159), despite testimony suggesting that there may be billions of combustion-promoter particles in a given batch (*see* Vol. V at 58

⁹ It is possible that the raw numerical data underlying the charts in PTX 411-E can be found in files supporting Dr. Herring's report. (*See* Vol. V at 106–09.) But these data would need to be converted using some (unspecified) algorithm or other mathematical operation into a format that is usable and understandable (*see id.*), and GWA did not present any such conversion at trial. To the extent that GWA relies on this raw numerical data to support Dr. Herring's testing, there is a basic failure of proof. GWA has the burden of persuasion, so if it wanted to rely on the numerical data to support its testing, it had to present that data in the form of evidence that was legible to the Court. This it failed to do. It goes without saying that the Court cannot be expected to perform complicated computational algorithms on its own.

(Aru), Vol. VI at 218 (Harold)). However, there was no testimony explaining to the Court the statistical significance of the testing of thirty particles, so even if all thirty particles showed the eggshell distribution, the Court has no way of knowing whether this would be representative of all particles throughout a batch.¹⁰

Because of the many defects in Dr. Herring’s testing, the Court also does not accord significant weight to the testimony of Dr. Everett Carpenter, who opined that Dr. Herring’s testing showed that the “vast majority” of OCPP particles meet the “eggshell” limitation of the ’864 Patent.¹¹ (Vol. VI at 55–56.) Although the Court found Dr. Carpenter credible and highly qualified, his analysis was limited to—and thus entirely dependent on—Dr. Herring’s testing. (*See generally id.* at 21–67.) In other words, Dr. Carpenter’s testimony rises and falls with Dr. Herring’s testimony. Because Dr. Herring’s testimony fails to persuade, so too does Dr. Carpenter’s.¹²

Finally, the Court found highly credible the testimony of Dr. Michael Francis, who explained how Grace manufactured OCPP using single-step impregnation on a Puralox base (which is likely to yield a uniform distribution), and how Grace makes no effort to achieve a non-

¹⁰ Dr. Herring stated that she chose the thirty-particle number based on conversations with Dr. Christopher Ehrhardt. (Vol. V at 159.) But she provided no details as to that conversation. (*Id.*) GWA had previously forecasted calling Dr. Ehrhardt to testify as an expert in statistics. (See ECF No. 270 at 25–31.) But, for reasons not apparent to the Court, GWA never called Dr. Ehrhardt to testify at trial, so the Court never had the benefit of his testimony.

¹¹ Dr. Carpenter is a professor of chemistry at Virginia Commonwealth University, where he also runs the university’s nanoscience and nanotechnology program. He has a Ph.D. in inorganic chemistry as well as an MBA. At trial, Dr. Carpenter testified for GWA as an expert in the field of materials chemistry, including the characterization of nanomaterials and supported catalysts. (Vol. VI at 22–28.)

¹² For all the reasons discussed here, the Court would reach this conclusion even if it had permitted Dr. Carpenter to testify expressly that “each” (not just the “vast majority”) of particles tested met the “eggshell” requirement.

uniform distribution of noble metals in OCPP.¹³ (See generally Vol. VI at 141–163.)

To be clear, the Court fully understands that the '864 Patent is a composition claim and is not directed toward a process, and that therefore if OCPP met all the limitations of the '864 Patent it would infringe regardless of how it was manufactured. Nevertheless, as the Court has previously explained, “how [Grace] manufactures its product is still relevant to the infringement analysis” because, as Grace has argued and the Court now finds, “the way [Grace] manufactures its [OCPP] necessarily results in a product that is unlikely to conform to the parameters of the '864 [P]atent.” (ECF No. 295 at 7.) The Court finds that the method Grace uses to create OCPP is highly unlikely to yield an eggshell distribution across “each” particle. (See, e.g., Vol. III at 217, 219 (Purnell¹⁴); Vol. VI at 189 (Harold).) There is no evidence beyond GWA’s speculation as to *how* Grace’s single-step method could yield an eggshell-style particle.¹⁵ For that reason, the Court is not

¹³ Dr. Francis is the director of process technology for refining technologies at Grace, and he oversees the OCPP manufacturing process. Dr. Francis has a Ph.D. in chemical engineering. (Vol. VI at 141–43.)

¹⁴ Dr. Scott Purnell is the vice president of R&D for Grace’s refining technologies business unit. In that role, he supervises a team of about one hundred scientists and technicians, who “are responsible for the development, testing, and ultimately the commercialization of new catalysts and additives,” including combustion promoters. His unit was involved in the development of OCPP. Dr. Purnell has a Ph.D. in chemical engineering. (Vol. III at 213–16.)

¹⁵ The Court is not persuaded by GWA’s argument that the stray, unexplained reference in Grace’s OCPP manufacturing directions to “using the sequence SEQ_1108_EAU” (see Vol. VI at 158 (Francis)) is enough to infer that Grace’s manufacturing method created an eggshell-type particle. Although it is perhaps *possible* that this method could have changed the noble metal concentration in the particle, there is no basis on which to infer that it is more likely than not that this *in fact* happened (let alone that the change created in OCPP an eggshell-type distribution of noble metal). Similarly, in the absence of any evidence supporting it, GWA’s theory that OCPP may have an eggshell distribution because of the difference in metal solution between Worms and Valleyfield, or because of the “slight” difference in manufacturing methods between these two facilities (see Vol. VI at 156–57 (Francis); ECF No. 323-1 at 13), is just that—a theory, and nothing more.

Finally, it is true that in a May 2021 email, Dr. Udayshankar Singh, a Grace scientist, stated that “the impregnation process is different” for OCPP as compared to CPP. (PTX 155 at 1; Vol. VI at 120.) Although Dr. Singh’s statement is puzzling and tends to support GWA’s theory, it was not corroborated—and, indeed, appears to be contradicted—by other evidence in the record. So, the Court does not ascribe

persuaded that it is even *possible*, much less more likely than not, for Grace to have created an infringing product.

D. CONCLUSIONS OF LAW

Because GWA has not proven, by a preponderance of the evidence, that “each” of Grace’s OCPP particles meets the eggshell requirement of the ’864 Patent, GWA has failed to establish that OCPP meets “each and every element,” *Linear Tech*, 566 F.3d at 1060 (citation omitted), of Claim 1 of the ’864 Patent. For the same reason, GWA also has not established that OCPP meets each element of the other asserted claims of the ’864 Patent, as these are all dependent claims that incorporate Claim 1. Accordingly, judgment will be entered in favor of Grace and against GWA on Count I of the Amended Complaint.

The Court does not reach Grace’s arguments that the ’864 Patent is invalid on the grounds of indefiniteness or anticipation. (See ECF No. 278 at 6; ECF No. 322-1 at 7 n.1.) The Court makes no determinations about the validity of the ’864 Patent, the same being unnecessary in light of the disposition of the infringement claim on other grounds.

III. FINDINGS OF FACT—LANHAM ACT

A. BACKGROUND

1. The Parties

a. The Plaintiffs

G. W. Aru, LLC and Cochise are Colorado limited liability companies that share a principal place of business in Conifer, Colorado. (Stips. 50–51.)

Guido Aru founded G. W. Aru, LLC in May 2017; he and his wife together own fifty-seven

much weight to this statement, when compared to all the evidence suggesting that there was no material difference in manufacturing methods.

percent of the company. (Vol. IV at 80; Vol. V at 6 (Aru).) Prior to starting GWA, Mr. Aru worked for thirty-one years in the refining industry, in both commercial and technical roles, most recently at Johnson Matthey (“JM”). Mr. Aru has a bachelor’s degree in computer science and has also completed three years of study in chemistry. (Vol. IV at 79–81.)

Other individuals with equity in G. W. Aru, LLC include Dr. Herring (with a three percent ownership stake (*see* Vol. V at 6 (Aru))), and three individuals associated with Equilibrium Catalyst, Incorporated (“ECI”), who together have some undisclosed ownership interest (*see* Vol. IV at 85 (Aru)). ECI “handle[s] all [G. W. Aru, LLC]’s logistics,” including packaging and shipping. (*Id.*) It also appears that ECI is responsible for manufacturing G. W. Aru, LLC’s combustion promoter products, along with a Dutch company called Euro Support. (*Id.* at 85–86, 136.) G. W. Aru, LLC had “over \$20 million in gross sales” as of 2023. (*Id.* at 123 (Aru).)

G. W. Aru, LLC has two employees—Mr. Aru and Dr. Herring. (Vol. V at 44.) It also has a few other individuals who work for the company, presumably on a contract basis—for example, Dawn Sagaser, G. W. Aru, LLC’s sales director (Sagaser Dep. at 2)¹⁶; Thomas Ventham, a technical and sales consultant for the company (*see* Vol. IV at 15)¹⁷; and Gerald Santos, a regional sales manager for the company (Santos Dep. at 38).¹⁸

Cochise is wholly owned by Mr. Aru and his wife. (Vol. IV at 131.) The ’864 Patent is assigned to Cochise, but Cochise does not manufacture or sell any combustion promoters or any

¹⁶ In her role as GWA’s sales director, Ms. Sagaser “call[s] on refineries” and “tries to develop new business,” including in the combustion promoter line. (Sagaser Dep. at 2–3.)

¹⁷ Mr. Ventham is responsible for GWA’s sales and technical support in Europe. He has a master’s degree in chemical engineering and is a chartered member of the Institute of Chemical Engineers, a United Kingdom–based professional organization. (Vol. IV at 11–12.) At trial, Mr. Ventham testified as an expert for GWA in FCC data analysis. (Vol. IV at 23.)

¹⁸ Mr. Santos is responsible for most of GWA’s sales accounts in the Gulf Coast region. (Santos Dep.)

other FCC products. (Stip. 30; Vol. IV at 130 (Aru); Vol. V at 6–7 (Aru).) Instead, Cochise licenses the '864 Patent to G. W. Aru, LLC pursuant to an exclusive agreement whereby G. W. Aru, LLC pays Cochise one dollar for every pound of promoter that G. W. Aru, LLC sells. (Vol. IV at 131.) G. W. Aru, LLC sells its combustion promoter under the trade name “Great FCC Promoter” (“GFP”). (Stip. 54.)

At all times relevant to this litigation, G. W. Aru, LLC’s and Cochise’s interests appear to be fully aligned. The parties appear to tacitly share this view, as they have generally treated the Plaintiffs as a unitary entity throughout the life of this case and at trial. So, from this point onward, the Court will continue its practice of referring to the two Plaintiffs collectively as “GWA,” noting the distinction between the two Plaintiff companies only where relevant.

b. *The Defendant*

Grace is a Connecticut corporation with its principal place of business in Columbia, Maryland. (Stip. 52.) Grace advertises itself as “the world leader in process catalysts” as well as the “leader in FCC catalysis,” and also claims to “offer[] a complete line of additive solutions.” (Stips. 9–10 (capitalization omitted).) Grace sells two combustion promoters that are relevant to this action: CPP and OCPP. (Stip. 53; Vol. III at 27 (Baillie).¹⁹)

Grace is a multinational corporation with a variety of business lines and global operations. (See, e.g., Vol. II at 41 (Balko)²⁰ (referencing Grace’s business in hydroprocessing and FCC as

¹⁹ Dr. Baillie has a Ph.D. in chemistry, as well an MBA. From 2015 to 2022, he was the global manager for Grace’s FCC environmental additives business (which includes combustion promoters and other additives meant to control emissions). In that role, he was responsible for marketing, sales, pricing, and commercial strategy for that line of the business. Starting in 2022, he moved from the FCC business to the hydroprocessing business, and is currently the “manager for the resid hydroprocessing catalysts.” Dr. Baillie works at Grace’s facility in Worms, Germany. (Vol. III at 7–13.)

²⁰ From 2016 until the end of 2021, Mr. Balko was Grace’s vice president for sales for the refining-catalyst business for the Americas. He has since been promoted to vice president of sales for Grace’s global

well as its sales in the “Asia-Pacific” region and India); Vol. III at 129 (Baillie) (referencing Grace sales in North America, Europe, the Middle East, and Africa); *id.* at 218 (Baillie) (referencing Grace manufacturing facilities in Canada and Germany).) One of these businesses is providing industrial and chemical products and related technical services to FCC refineries. Base catalyst-related sales constitute approximately ninety-one percent of Grace’s FCC business. (Vol. II at 26 (Cirihal).²¹) Combustion promoter sales make up only a small portion—approximately 0.5 percent—of Grace’s FCC business. (*Id.* at 27.)

2. The Parties’ Relationship

“The relationship between GWA and Grace was not always contentious.” *GWA II*, 761 F. Supp. 3d at 838. GWA and Grace began discussing potential avenues of collaboration in 2018, when Mr. Aru approached Grace’s R&D team. (Vol. IV at 120–21 (Aru).) These discussions ripened into a business relationship in which GWA shared research findings with Grace and resold certain Grace products under the GWA brand, and Grace purchased a GWA additive for sulfur oxide reduction. (*Id.* at 120–22 (Aru).) The parties also entered into a nondisclosure agreement. (*See id.*) From as early as 2019, however, the relationship between GWA and Grace was “complex.” (Vol. III at 39 (Baillie).) Even as Grace was actively partnering with GWA in certain areas, Grace also considered GWA to be a competitor in certain other product markets. (*Id.*)

The relationship between the parties began to fray in early 2021, when Grace terminated an oral joint marketing agreement that the parties had made. (ECF No. 231 at 4; Vol. IV at 122

refining technology business. In that role, he is “responsible for both developing and delivering sales revenue” and leading a team of approximately ninety people who provide sales and services to customers. Mr. Balko has a degree in chemical engineering, as well as an MBA. (Vol. II at 39–42.)

²¹ Mr. Cirihal is the president of Grace’s refining technologies business. In his current role, Mr. Cirihal has “profit and loss” responsibility for the “entire business of refining technologies,” including FCC catalysts and additives. He has a bachelor’s degree in chemical engineering. (Vol. II at 17–19.)

(Aru).) Around this same time, Grace began to note, with some concern, GWA’s growing success in the combustion promoter market. On January 14, 2021, an internal Grace email stated that Valero (a Grace customer) was “concerned about [Grace] not having a competitive product to Guido’s lower cost promoter that they just successfully trialed.” (PTX 352 at 3.) A few days later, Dr. Baillie, Grace’s manager for the FCC additives business, wrote in an email that “[i]t is disappointing that we can’t tie up a relatively small amount of CO promoter business. We don’t want GWA in any of our accounts.” (PTX 94 at 1; Vol. III at 151 (Baillie).) Dr. Baillie worked to create a marketing and advertising push to compete with GWA’s combustion promoter and prevent GWA from acquiring any of Grace’s business. (Vol. III at 151 (Baillie).)

The groundwork for the January 2021 rupture between the parties had been laid a few years earlier. The deterioration in the parties’ relationship must be understood in the context of a spike in the price of palladium—the most expensive component of combustion promoters—that began in 2019 and lasted until 2023. An internal Grace presentation noted that, as of May 2021, the price of palladium had reached over \$2,900 per troy ounce, representing a 190 percent increase over the preceding three years. (JTX 31 at 3; *see also, e.g.*, JTX 69 at 1–2 (July 2022 Grace presentation noting that palladium had “increased considerably” in price over the preceding four years); Vol. II at 151 (Riley);²² Vol. III at 38 (Baillie).) Grace recognized that both JM and GWA were offering combustion promoters with lower palladium content, and that—given the high cost of palladium—Grace’s CPP, which had a relatively high palladium content, was “at a cost disadvantage.” (JTX 69 at 2.) Indeed, as early as March 2020—almost a year before Grace terminated the joint

²² Mr. Riley has been the director of sustainability at Grace since 2023. Prior to his current role, he sold combustion-promoter products to refineries, and was generally responsible for understanding the market for FCC products. (Vol. II at 128–30.)

marketing agreement—Dr. Baillie noted that, given the spike in palladium prices, competitors with lower-palladium promoters (such as GWA) may “use it as an opportunity and take combustion promoter business from us.” (PTX 81 at 1.)

3. The Combustion Promoter Market

The domestic buyers of combustion promoters are about 110 FCC refineries in the United States, owned by about thirty companies.²³ (Vol. II at 153 (Riley).) Valero and Marathon are the two largest FCC refining companies in the United States, each with thirteen FCC units. (See Larsen Dep. at 4–5 (Marathon);²⁴ Sexton Dep. at 2–4 (same);²⁵ Tierney Dep. at 9–11 (Valero);²⁶ Federspiel Dep. at 5–6 (same).²⁷)

Grace and GWA are—and consider themselves to be—direct competitors in the combustion promoter market. (Vol. II at 130 (Riley); Vol. III at 39 (Baillie), Vol. IV at 131 (Aru).) But they are not the only industry participants. Other sellers included JM, BASF, and Albemarle. (Vol. II

²³ There are also about fifty to fifty-five FCC units in Europe. (Vol. IV at 12 (Baillie).) The record does not reflect how many FCC units exist in other parts of the world.

²⁴ Nikolas Larsen works for Marathon Petroleum’s corporate office in its refining technology group. He has a bachelor’s degree in chemical engineering. In his current role, he advises individual Marathon refineries on technical aspects of the business, such as which products to use and how to optimize certain refining processes. As part of his role, he evaluates potential new FCC products, such as combustion promoters, and he plays a role in facilitating trials of new products. (See Larsen Dep. at 1–10.)

²⁵ Jeffrey Sexton is a technology director at Marathon. Previously, he was Marathon’s FCC subject matter expert. Mr. Sexton has a bachelor’s degree in chemical engineering. (Sexton Dep. at 2–3.)

²⁶ Tim Tierney works for Valero in its catalyst and chemical procurement division. He has a bachelor’s degree in chemical engineering and a “micro-master” degree in “supply chain,” and has several decades of experience working in engineering and manufacturing roles. In his current role at Valero, he is responsible for “managing the relationships with the existing suppliers, managing contract updates or new contracts, negotiating pricing, negotiating basic terms of how [the supplier and Valero] are going to work together.” He is involved in Valero’s purchasing decisions for combustion promoters at its refineries, as well as in Valero’s broader corporate planning for its FCC business. He also helps facilitate the technical evaluation of new products. (Tierney Dep. at 1–7.)

²⁷ Michael Federspiel is “Director of Technology FCC” at Valero. He has a bachelor’s degree in chemical engineering, and he previously worked as a senior director in Grace’s FCC division. He oversees Valero’s FCC operations and evaluates combustion-promoter purchasing decisions. (See Federspiel Dep.)

at 130–31 (Riley); Larsen Dep. at 69–71; Sexton Dep. at 5–6; Tierney Dep. at 8–9.) Of these, at least JM and BASF offered promoters advertised as “low noble metal or low NOx.” (Vol. II at 130–31.) JM and Grace are GWA’s two main rivals, at least in the U.S. market. (Vol. V at 68 (Aru).) And, in the U.S. market, JM has the largest market share, with Grace second and GWA third. (Sexton Dep. at 5–6; Larsen Dep. at 70–71; *see also* Vol. III at 51 (Baillie) (referring to JM as “the other main supplier of combustion promoters to the market”); *id.* at 82.) Grace’s market share in the FCC combustion promoter business is between approximately twenty and thirty percent, likely toward the lower end of that range.²⁸ (Vol. II at 68–69 (Balko).) GWA’s market share is not in the record, but GWA has made at least some sales to about half of the companies that own FCC units. (Vol. V at 21 (Aru).)

The industry is highly concentrated, but it is not so concentrated that—in the absence of any other evidence—the Court can conclude that any given Grace sale represents a sale that would have otherwise likely gone to GWA.²⁹ In the abstract, because JM is the largest seller, if a sale does not go to Grace, it is at least as likely (indeed, probably *more* likely) that it would instead go

²⁸ There was some evidence indicating that Grace’s market share was approximately thirty-seven percent. (*See* Vol. II at 35–36 (Cirihal).) But Mr. Cirihal did not appear confident that this was the correct number, and Mr. Balko—who seemed more knowledgeable and confident on the stand as to this issue—specifically testified that he believed that Grace’s market share had recently declined below thirty percent, as a result of Grace shifting its focus toward the base-catalyst business and deemphasizing the promoter business. (*See* Vol. II at 68–69.) The Court accredits Mr. Balko’s testimony.

²⁹ The Court’s findings at the preliminary-injunction stage that “each sale that Grace makes, aided by its false representation, likely represents a lost sale[s] opportunity for GWA” was based on its understanding, upon the record available at that time, that GWA and Grace were the only (or at least the main) two sellers of combustion promoters. (*See* ECF No. 183 at 68.) Now, with the benefit of a fully developed trial record, the Court sees that GWA and Grace are not the only combustion-promoter sellers, and indeed neither is even the biggest seller in this market. The Court is not bound by findings made at the preliminary-injunction stage, and it does not adopt them here. *See N.C. State Conf. of NAACP v. Hirsch*, 720 F. Supp. 3d 406, 417 (M.D.N.C. 2024) (“[A]ny ruling on a preliminary injunction[] does not preclude a different resolution on a more fully developed record.” (citing *Newsom ex rel. Newsom v. Albemarle Cnty. Sch. Bd.*, 354 F.3d 249, 161 (4th Cir. 2003))).

to JM rather than to GWA.

B. THE DEVELOPMENT OF OCPP

In 2019, as a result of the palladium price spike, Grace began developing an “optimized” version of its palladium-based combustion promoter, CPP. (Vol. III at 37–38.) The idea for the creation of OCPP was Dr. Baillie’s. (*Id.*) The value proposition for OCPP was simple—it purported to offer the same or similar performance as CPP, but at a lower cost. (*See, e.g.*, PTX 222 at 1 (Grace email stating that OCPP had similar performance but cost only \$29.10 per pound, as opposed to \$39.50 per pound for CPP).)

CPP had a palladium concentration of between 500 and 550 parts per million (“ppm”). (Vol. III at 42 (Baillie).) However, Grace had internal research, dating from 2009, that it believed showed that Grace could “drop palladium levels to 250 ppm palladium without a significant impact on [combustion] activity.” (*Id.* at 41.) But because combustion promoter sales were such a small portion of Grace’s overall FCC business—and because customers had generally been satisfied with CPP’s performance—Grace had not put resources toward bringing a lower-palladium promoter to market until the 2019 palladium price spike made it economically worthwhile to do so. (*Id.* at 42.)

Grace made two changes to OCPP as compared to regular CPP. First, it switched the alumina base for the promoter particle from a product called Versal to one called Puralox. (Vol. III at 91 (Baillie); *id.* at 216 (Purnell); Vol. IV at 27 (Ventham).)³⁰ Whereas Versal was an internal Grace product, Puralox was purchased from a third-party company, Sasol. (Vol. III at 29, 110 (Baillie).) Puralox is superior to Versal because it provides a higher level of combustion activity.

³⁰ To be more precise, CPP manufactured in Valleyfield has a Versal base, whereas OCPP manufactured in Valleyfield has a Puralox base. (Vol. III at 28, 91 (Baillie).) By contrast, CPP manufactured in Worms had *always* used a Puralox base (*id.*), so when it comes to promoters manufactured in Worms, the alumina base in CPP and OCPP is actually the same. (*See* Vol. IV at 27 (Ventham).)

(*Id.* at 29, 105, 206 (Baillie).)³¹ Second, Grace lowered the palladium concentration from approximately 500 to 550 ppm to approximately 330 to 350 ppm. (*Id.* at 91 (Baillie); *id.* at 216, 227 (Purnell).) By using less of the expensive noble metal, Grace could charge less for OCPP.

Grace manufactures OCPP at two facilities: one in Valleyfield, Canada, and the other in Worms, Germany. (Vol. VI at 143 (Francis).) The first batch of OCPP was manufactured in Worms and debuted (at least for the North American market) in a commercial trial at a Valero refining facility in Wilmington, California that ran from December 2020 through January 2021. (Vol. III at 44, 47 (Baillie).)

C. THE ADVERTISEMENTS

Grace supported the rollout of its new combustion promoter product with a sales and marketing campaign. This campaign is at the center of GWA’s claim for false advertising.

1. The PTQ Article and Blog Post

a. *The PTQ Article*

Grace published an article entitled “CO promoter technology development” in the “Q2” (*i.e.*, second quarter) 2022 edition of Petroleum Technology Quarterly (“PTQ Article”). (Stip. 42; JTX 1.) PTQ is a trade magazine for the petroleum refining industry. (*See, e.g.*, Sexton Dep. at 22–23.) Dr. Baillie authored the PTQ Article. (*See* Vol. III at 103–04.)

The PTQ Article contains the following language:

A customer performed a trial comparing Grace’s Optimized CPP technology versus a competitor’s lower palladium promoter. **Figure 1** shows the relative CO promoter usage rate for Optimized CP P versus the competitor promoter. On average, the usage rate for Optimized CP P decreased by 64%.

³¹ The reason Puralox is superior has something to do with “the physical properties, such as surface area and the pore volume,” of the two products. (Vol. III at 105 (Baillie).)

(Stip. 44.) Figure 1, together with its caption, is reproduced below.

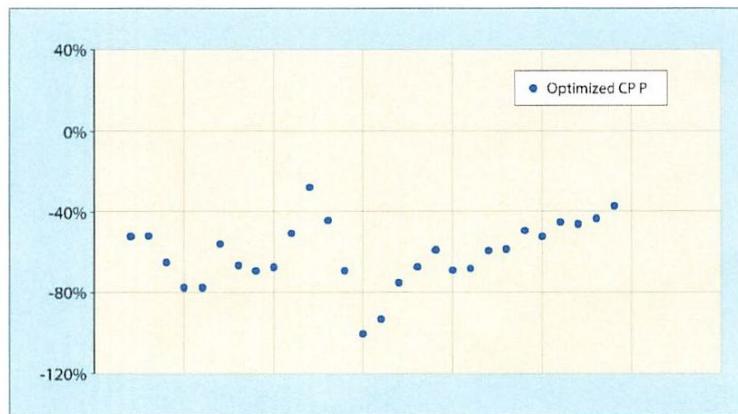


Figure 1 Relative change in usage rate for Optimized CP P vs a competitor promoter

(JTX 1 at 2.)

The PTQ Article also contains the following language:

The relative change in afterburn when switching from the competitor promoter is shown in **Figure 2**. Even though there was a lower usage rate of Optimized CP P, the afterburn was reduced by 11%.

(Stip. 45.) Figure 2, together with its caption, is reproduced below.

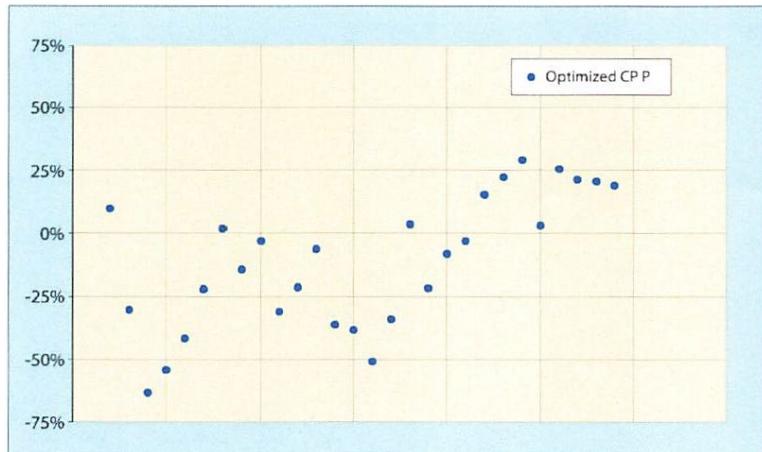


Figure 2 Relative change in afterburn for CP P and Optimized CP P vs a competitor promoter

(JTX 1 at 3.)

The Court will refer to these and similar Grace claims touting the advantage of OCPP over a competitor product as “comparative-performance claims.”

The PTQ Article also claims that OCPP provides the “additional benefit of lower NOx emissions,” and that OCPP particles have a higher proportion of noble metals “residing on the outer surface of the particle.”³² (JTX 1 at 3.)

The PTQ Article was based on a case study of a trial conducted at Valero-Wilmington, which compared the performance of GWA’s GFP with Grace’s CPP and OCPP. (Vol. III at 47–48, 50–51, 53, 134 (Baillie).) Brian Lewis, a Grace technical service manager, analyzed the results of this trial and sent the data to Dr. Baillie for his use in preparing the article and related promotional materials. (Vol. III at 48–49.)³³ Dr. Baillie stated in an internal Grace email from January 2021 that he wanted to “work” Mr. Lewis’s analysis “into a marketing package, to support the roll out of Optimized CPP, and to protect/capture business vs GWA.” (PTX 172 at 8.)

It is now uncontested that there were errors in the data and the evaluation thereof on which Dr. Baillie relied in preparing the PTQ Article. (See Vol. III at 72–73 (Baillie).) The Court will discuss the source and nature of these errors *infra* Part III.D. The Court previously determined, at the summary-judgment stage, that the comparative-performance claims were literally false because they were not supported by the data on which Grace relied. (See ECF No. 231 at 20.)

³² At trial and in its post-trial briefing, GWA did not seek liability for NOx claims in the PTQ Article; instead, GWA’s NOx-related arguments are limited to Grace’s “test-validated” NOx claims (*see generally*, *e.g.*, ECF No. 338), discussed *infra* Part III.E. And GWA also disclaimed, in its opening statement at trial, that it was seeking liability as to the “outer surface” claims. (See ECF No. 312 at 12–13.)

³³ Brian Lewis was a technical service manager for Grace from 2015 until August 2022. One of his responsibilities in that role was to provide technical services support for the Valero-Wilmington refinery, which involved him “review[ing] their operating data and generat[ing] plots and graphs and provid[ing] analysis on their operation.” He provided technical service support and analysis for the Valero-Wilmington trial of OCPP that ran from December 2020 to January 2021. (Lewis Dep. at 2–4.)

There is conflicting testimony on the reach of PTQ's readership. Some industry participants read PTQ regularly and consider it to be well-known in the petroleum refining industry. (See Larsen Dep. at 49–50; Sexton Dep. at 22–23; Vol. II at 69 (Balko).) Others, however, never read PTQ or have never even heard of it. (Tierney Dep. at 47; Colmone Dep. at 50.³⁴) Two refinery witnesses specifically testified to reading the PTQ Article around the time it was published. (Larsen Dep. at 50; Federspiel Dep. at 12.) But two other witnesses testified that they learned of the article for the first time only as a result of this litigation. (See Colmone Dep. at 50; Tierney Dep. at 48.) The Court finds that, at least in the absence of additional evidence specific to a particular refinery, it is merely possible—not likely—that a buyer at that refinery had read any portion of the Q2 PTQ issue (much less the specific article at issue in this case) before purchasing OCPP.

b. *The Blog Post*

In April 2022, Grace posted an article on its corporate blog that was very similar to the PTQ Article. (Vol. III at 130 (Baillie); PTX 6.) Dr. Baillie wrote the blog post. (*Id.*) It contains the following language: “The process that Grace uses to incorporate palladium and platinum onto the CO promoter naturally leads to a particle where the majority of the metals are located at the surface. However, the advanced alumina used for the optimized CO promoters results in an even higher proportion of the metals residing on the outer surface of the particle.” (Stip. 46.)

Grace's blog post also states: “A customer performed a trial comparing Grace's Optimized

³⁴ Joseph Colmone is the “Director of Process Technology” at the refining company Delek. He has a bachelor's degree in mechanical engineering. In his current role, he oversees Delek's subject-matter experts in the refining-process technologies. He has “[s]ome” involvement in Delek's purchasing decisions for combustion promoters. Specifically, he evaluates the technical specifications of potential promoters and discusses options with individual Delek refineries. (Colmone Dep. at 1–4.)

CP®P technology versus a competitor’s lower palladium promoter. Figure 1 shows the relative CO promoter usage for Optimized CP®P additive versus the competitor promoter. On average usage rate for Optimized CP®P decreased by 64%.” (Stip. 47.)

Grace’s blog post was not widely read. The only witness who testified to seeing the blog post before this lawsuit began was Mr. Aru himself. (See Vol. V at 78; *see also* Tierney Dep. at 57–58 (Mr. Tierney stating that he was unaware of anyone at Valero reading the blog post or making purchasing decisions because of the blog post).)

2. Claims Made in Individual Outreach

In addition to writing the PTQ Article and the Grace blog post, Dr. Baillie also prepared “data sheets” summarizing OCPP. (Vol. III at 130.) These data sheets contained much of the same information as in the PTQ Article and blog post, including comparative-performance claims, NOx claims, and “outer surface” claims. (Vol. III at 130–32 (Baillie).) These OCPP data sheets, which sometimes varied slightly in content, were often sent by email to refineries or shared during meetings. (See, e.g., JTX 18 (February 2022 email from Grace to Delek containing data sheets); JTX 27 (April 2021 email from Grace to Marathon containing data sheets); *see also* Vol. II at 153–54 (Riley).)

These data sheets, in addition to containing the comparative-performance claims, also often made more detailed claims about NOx emissions (the “test-validated NOx claims”). (See, e.g., JTX 20 at 4 (attachment to July 2022 email from Grace to Delek claiming that OCPP “exhibits approximately 12% lower NOx production than the standard [CPP],” and providing an accompanying chart); PTX 8 at 4 (attachment to January 2021 email from Grace to Marathon discussing the results of “pilot plant testing” involving NOx emissions of CPP and OCPP).)

D. THE SOURCE AND NATURE OF THE COMPARATIVE-PERFORMANCE CLAIM ERRORS

As noted above, the comparative-performance claims appear in the PTQ Article, Grace blog post, and OCPP data sheets. At summary judgment, the Court found—based on the record then before it—that the entirety of the data on which Grace relied in making the comparative-performance claims were in a document that the parties in discovery referred to as “GRACE_47” (admitted at trial as PTX 86, (*see* Vol. III at 67–68)). *GWA II*, 761 F. Supp. 3d at 845–48. At trial, Dr. Baillie admitted to testifying previously at his deposition that GRACE_47 contained the entirety of the data, but stated that he was mistaken and that there were other data, not contained in that document, on which Grace relied. (Vol. III at 73.) Nevertheless, he conceded that there were “errors” in the data he received. (*Id.* at 72.)

The trial record did not entirely clear up how these “errors” came to be. Perhaps the underlying data that Valero-Wilmington sent to Mr. Lewis was defective in some way, or perhaps Mr. Lewis made errors in evaluating that data. Perhaps both happened.

In any event, the record indicates that Dr. Baillie received data analysis from Mr. Lewis in January 2021 and put together a “marketing case study,” which he then sent to others at Grace for internal review. (*See* PTX 172 at 2.) However, at that same time, Dr. Baillie received at least one communication from Mr. Lewis that stated that OCPP performed merely fifty-four percent better than GFP, not sixty-four percent as Grace would later claim. (*See* Vol. III at 143; PTX 93.) Meanwhile, in internal Grace communications in 2021 and continuing into June 2022 (a couple months after the PTQ Article was published), Dr. Baillie repeatedly stated that OCPP’s performance as compared to GFP was the same or merely slightly better, and stated that, in a trial at another refinery, it actually performed *worse*. (Vol. III at 143–44, 147–48; PTX 98 (referring to

OCPP’s “similar/slightly improved performance” at the Valero-Wilmington trial as compared to GFP and CPP); PTX 102 (noting that OCPP’s performance at the Placid refinery was “reported not to be as effective as GWA” and that “even taking into account Placid, I believe that [OCPP] will perform more or less the same as GWA’s lower Pd promoter”).) In other words, at the very same time that Grace was trumpeting a sixty-two or sixty-four percent improvement, Grace’s internal communications show that the company knew the products basically performed the same.

E. THE TRUTH OF THE NOX CLAIMS

1. The 2009–2011 RTU Study

It is generally accepted in the industry that a combustion promoter with a lower noble metal concentration will tend to have lower NOx emissions, at least in theory. (See Vol. III at 222 (Purnell); Vol. VI at 95 (Singh).)³⁵ But it is also understood that this does not always work out in practice, because if a refiner must use more of the lower-noble-metal promoter to achieve the desired CO promotion, then NOx emissions might not decrease, “[b]ecause net, you’re just putting much more noble metal back into the equation.” (Vol. III at 127–28 (the Court summarizing Dr. Baillie’s testimony); *see also id.* at 225–26 (Purnell).)

Between 2009 and 2011, Grace scientists, led by Drs. Ziebarth³⁶ and Singh, conducted a study on the effects of changing the palladium concentration in Grace’s CPP product. (Vol. VI at 90, 96–98 (Singh); JTX 38.) The study was based on data collected from the Regenerator Test

³⁵ Dr. Udayshankar Singh is a Senior Principal Scientist at Grace. He began at Grace as an R&D engineer in 2007. In his time working for Grace, Dr. Singh has conducted research and development on various FCC technologies including combustion promoters and NOx additives. He has a Ph.D. in chemistry and has also completed some postdoc work in the field. (Vol. VI at 79–84.)

³⁶ Dr. Michael Ziebarth did not explain his role at Grace during the portion of his deposition played at trial. (See generally Ziebarth Dep.) But other testimony at trial indicates that he is retired but was formerly a senior scientist at Grace who reported directly to Grace’s vice-president for R&D, Dr. Purnell. (See Vol. III at 216.) Dr. Singh reported to Dr. Ziebarth until Dr. Ziebarth’s retirement. (*Id.*)

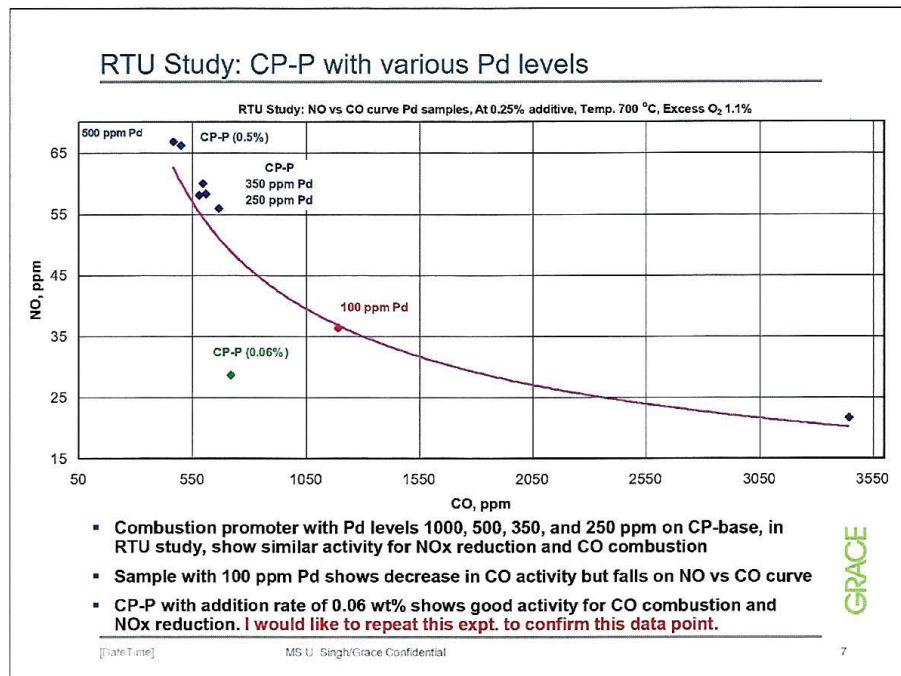
Unit (“RTU”), a machine or facility located at Grace headquarters that simulated the functionality of an FCC regenerator. (See Vol. VI at 86–87.) The basic result of the study was that for combustion promoters on a Puralox base, the palladium concentration could be reduced to approximately 250 parts per million without a significant diminution in CO combustion activity. (Vol. VI at 91.) It also appears to have found a correlation—albeit not an especially strong one—between lower palladium concentration and lower NOx emissions, as seen in the following chart, reproduced from the study:

RTU Data						
Sample	CO Combustion activity, %	NO/ppm	CO/ppm	CO2/%	SO2/ppm	H2O/%
Blank		17	2901	0.64	89.34	1.06
CP 5/Puralox/Plant- 19479-28	72.5	103	798	0.66	86.96	1.28
CP P 1000/Puralox/Plant- 19479-27	75.6	134	707	0.63	75.94	1.16
CP P 1000/Puralox- 19479-11A	75.7	136	706	0.66	80.88	1.15
CP P 500/Puralox- 19479-20	74.1	127	751	0.62	74.96	1.17
CP P 350/Puralox- 19479-21	73.3	131	775	0.64	72.65	1.17
CP P 1000/Versal- 19479-22	69.0	139	899	0.68	85.50	1.12
CP P 500/Versal- 19479-23	65.9	123	991	0.68	88.97	1.17
Blank		15.51	3023.35	0.67	101.11	1.29
CP 5/Puralox/Plant- 19479-28-R	73.41	107.58	803.81	0.67	89.76	1.15
CP P 1000/Puralox- 19479-11A-R	75.32	139.05	746.06	0.68	83.15	1.24
CP P 500/Puralox- 19479-20-R	73.84	133.23	790.94	0.68	83.59	1.28
CP P 1000/Versal-2 19479-25	73.69	136.20	795.23	0.62	78.13	1.03
CP P 500/Versal-2 19479-26	71.59	131.15	858.78	0.63	82.40	1.29
CP P 350/Versal- 19479-24	63.77	107.15	1095.26	0.66	89.35	1.19

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GRACE

(JTX 38 at 7.) A graph from the study also reveals this general trend at a broad level, although the graph has some missing labels that makes a detailed analysis difficult (note that in this chart, a result toward the lower left corner is more favorable, as this means that the promoter achieved a more complete oxidation of CO to CO₂ while keeping NOx emissions low):



(JTX 38 at 9.)

When doing a like-to-like comparison of CPP samples prepared on a Puralox base, the data appear to show that that NOx emissions *generally* (not always) decline slightly as the palladium concentration declines. A like-to-like comparison of CPP samples prepared on the Versal base also supports this conclusion. As Dr. Singh put it in summarizing these findings, “the data is consistent with our observation in the field that as you lower the amount of palladium in the FCC regenerator system, the NOx emission will go down.” (Vol. VI at 108–09.) The data pertaining to “CP P 350/Puralox” is especially relevant, as that is essentially equivalent to modern-day OCPP. (See Vol. VI at 151–52 (Dr. Francis testifying that, for OCPP manufacturing, the target concentration of palladium is 330 ppm, but that the exact concentration in a batch varies and OCPP with 350 ppm is possible).) The data show that “CP P 350/Puralox” produces lower NOx emissions than all “CP P 1000” samples and half of the “CP P 500” samples. And the one “CP P 500” sample with a significantly lower NOx emission output *also* had significantly worse CO combustion

performance, meaning one would need to add more of the product into the unit to achieve the desired combustion amount, thus possibly wiping out any potential advantage in NOx emissions.

To be sure, the report's findings on NOx emissions are not overwhelming—they support, at best, a weak and uneven correlation between reducing palladium concentration and reducing NOx emissions. The reduction in NOx does not occur every time. And, if one compares Versal-based CPP with Puralox-based CPP, the relationship between NOx and palladium concentration is less clear cut. (*See* JTX 38 at 7.) It is also true that in certain instances the reduction in NOx emissions is *also* accompanied by a reduction in combustion activity, such that one might need to add more promoter to get the desired combustion level (thus potentially negating out any NOx advantage).

On balance, the Court finds that the RTU study tends to support—albeit weakly—the basic proposition that—all things being equal—a reduction in palladium concentration tends to correspond to a reduction in NOx emissions. It also provides support for the proposition that OCPP in particular is likely to have lower NOx emissions than CPP, because of the data on “CP P 350/Puralox,” which is essentially equivalent to OCPP. In reaching this conclusion, the Court relies both on its own reading of the table and chart, and also on the testimony of Dr. Singh, whom the Court found highly credible. By contrast, the Court did not find credible or particularly persuasive the testimony of GWA's expert witness, Thomas Ventham, who testified that the RTU study did not provide support for the proposition that OCPP had lower NOx emissions than CPP.³⁷

³⁷ For one thing, Mr. Ventham's credibility is inherently diminished by the fact that he has a technical and sales role at GWA. (Vol. IV at 15.) More troubling, however, was Mr. Ventham's insistence that the RTU study's reference to “CP base” must have referred to Versal alumina rather than Puralox, and that therefore the RTU study does not have data relevant to OCPP's NOx emissions (since OCPP uses the Puralox base). (*See* Vol. IV at 30, 40.) He based this opinion on his unexplained belief that all CPP made in Valleyfield used Versal, although he also agreed that all CPP made in Worms used Puralox. (*See* Vol. IV at 40–41.) Yet, the RTU study is entitled, in large font on the first page, “RTU Study:- [sic] CP P Samples

On this issue, the allocation of the burden of persuasion is of paramount importance. If Grace had the burden of persuading the Court that the NOx claims were true, this would be a very close case. But here, it is GWA that must persuade the Court that the claims are false. The Court is not persuaded.

2. The Use of NOx Claims in Advertising

Grace stopped using the RTU around 2014 or 2015. (Vol. VI at 119.) A few years later, in 2019, Dr. Singh provided the results of the RTU study to Dr. Baillie in connection with the development of OCPP. (Vol. VI at 102 (Singh).) Dr. Baillie used the results of the RTU study as the basis for Grace’s claims in the PTQ Article, blog post, and product data sheets about NOx emissions reductions in OCPP. (Vol. III at 96.) The PTQ Article and blog post both refer vaguely to OCPP providing “an additional benefit of lower NOx emissions.” (JTX 1 at 3; PTX 6 at 3.) GWA no longer challenges the veracity of these statements. (ECF No. 339-1 at 6 n.4.) But some of the OCPP data sheets made more detailed claims, with charts and specific numerical values, which the parties refer to as “test-validated NOx claims.”

For example, Grace sent an OCPP data sheet to the Suncor refinery in October 2023, which contain test-validated NOx claims. (See Vol. II at 116–17 (True);³⁸ PTX 318 at 6.) During trial, counsel for GWA inquired into the NOx claims in this document only to the extent that GWA asked Mr. True if he knew whether “pilot plant testing for NOx reduction [was] conducted with [OCPP].” (Vol. II at 118.) Counsel for GWA did not ask Dr. Singh any questions about the document.

from Worms.” (JTX 38 at 2.) And even when confronted with the fact that the RTU study is purportedly from Worms, Mr. Ventham continued to insist—without providing any explanation for the basis of this insistence—that the RTU study did not in fact use CPP for Worms and that “CP base” must refer to Versal. (Vol. IV at 42.) The Court found that this exchange impeached his credibility.

³⁸ Daniel True is a technical sales director at Grace. In that role, he manages technical service engineers and also is responsible for some sales accounts directly. (Vol. II at 90–91.)

Now, in post-trial briefing, GWA advances a detailed and complicated argument challenging the accuracy of the statements made in OCPP data sheets sent to Suncor, Delek-El Dorado, and CHS-Laurel. (See ECF No. 339-1 at 12–14.) With respect to the data sheet sent to Suncor, the crux of GWA’s argument is that the charts in the Suncor data sheet appear to be copied from the RTU study, but that they purport to be the result of “pilot plant testing” and moreover that some of the data appears to have been altered by Grace. (See *id.*) As for the data sheets sent to Suncor and Delek, GWA contends that the Grace “manipulated” the charts. In the data sheet Grace sent to Delek, there was a chart showing “pilot plant testing of CPP vs. [OCPP]” that showed very slightly worse CO oxidation for OCPP compared to CPP. (PTX 183 at 12.) By comparison, Grace sent a slightly different version of the chart in a data sheet to CHS, in which the combustion performance is shown to be identical. (*Compare* PTX 222 at 8 with PTX 183 at 12.)

The Court agrees that the charts are very slightly different. But putting aside GWA’s ominous insinuations in briefing, there was no evidence at trial showing that the specific charts in PTX 222 or PTX 183 were false or misleading. In fact, there was no substantive testimony about the NOx claims in these charts during trial whatsoever. (See, e.g., Colmone Dep. at 28–32 (only testimony regarding PTX 183 (there referred to as “exhibit eight”)).) For example, this is the *entirety* of the testimony at trial regarding PTX 222:

Q. Mr. True, this is an e-mail dated January 25th, 2023, from you to Robert Wadd. Who is Robert Wadd?

A. Rob is a procurement person at the CHS refinery in Laurel, Montana.

Q. And who’s Chad Nauman?

A. He was the FCC unit engineer at that time.

Q. And who is Maria Hovet?

A. Maria is a person who at that time was in our order fulfillment group at Grace.

Q. And it looks like on the attachments line, it reflects that it included as attachments an Optimized CPP case study and Optimized CPP product information sheet?

A. Yes.

(Vol. II at 111.)

There was no testimony about the NOx data in PTX 318, PTX 222, or PTX 183 (aside from a single reference to Grace’s representation that the data came from “pilot plant testing”), and the Court declines GWA’s invitation to play data scientist and attempt to parse the accuracy of these charts itself. Without relevant testimony to help it understand the significance of the discrepancies between these charts and the data contained in the RTU study, the Court is simply not persuaded that the charts are false.

F. INFLUENCE OF ADVERTISING ON INDUSTRY BUYERS

The evidence bearing on materiality is voluminous. The Court finds that the comparative-performance claims were of the sort that were likely to influence a refinery’s decision whether to *trial* OCPP. However, they were unlikely to have much influence on a refinery’s decision to purchase OCPP *long term*. The Court further finds that the test-validated NOx claims (assuming *arguendo* that they were false) were not likely to influence the purchasing decision.

1. How Advertising Works in the Industry

Selling combustion promoters is not like selling soft drinks. A splashy advertising campaign is simply not going to move the needle very much for the target audience. The evidence at trial showed that buyers in the combustion-promoter market are hard-nosed engineers and corporate executives who are focused on their bottom line at their refineries. They are inherently skeptical of any promotional claims—and they have the means to independently verify such claims. They closely monitor, on an essentially continuous basis, performance metrics at their facilities. Furthermore, they almost universally insist on doing their own testing of any product before making a long-term purchase.

Buyers in the petroleum refining industry do not take advertisements at face value. (See

Sexton Dep. at 11 (“[P]art of any engineer’s due diligence is to challenge [a vendor’s claims] and to make sure that you understand validity.”); Tierney Dep. at 14–15 (“[W]e would consider [promotional materials], but we would consider it with a jaded eye or whatever. . . . [W]e know it’s probably going to be slanted in their favor, so we would want to verify it for ourselves.”); Colmone Dep. at 16 (testifying that, in deciding whether to make a purchasing decision, “I’d want to see case studies. I’d want to see effects on NOx emissions. I’d want to see effects on temperature. I want to see activity life in the unit. How long [it takes a] shot of promoter [to] take effect.”). *But see* Colmone Dep. at 35 (testifying that he generally takes product information from Grace at face value and is inclined to believe that it is true).) Perhaps most strikingly, two witnesses called by GWA expressly denied ever relying on something in a PTQ publication when making a purchasing decision. One, Mr. Larsen, said that he “can see the kind of fluff that can get through PTQ articles” and that he would have to do his own “due diligence.” (Larsen Dep. at 78–79.) The other, Mr. Federspiel, said multiple times that he would not rely on PTQ or any other marketing materials in making a purchasing decision, that he is not aware of anyone at Valero who has relied on PTQ or other marketing materials in making a purchasing decision, and that he is not aware of any Valero business that was diverted to Grace from GWA as a result of the advertisements. (Federspiel Dep. at 12–15.)

Further, testimony indicated that some customers might have found the comparative-performance claims implausible on their face, or else too vague to be given any weight. (*See* Federspiel Dep. at 12–14 (describing the PTQ Article as “pretty bad” and not “technically astute,” and that, as a result, he would not rely on it in making a purchasing decision); Larsen Dep. at 59–60 (testifying that he would be unable to interpret the charts contained in the PTQ Article because the x-axis was unlabeled).) Even if customers thought the claims were accurate in the narrow

sense of representing the performance of that specific trial, they might still doubt whether the product would perform as well in their own refinery. There is a high degree of variability in FCC units, such that a product that works well in one unit might not work nearly as well in another. (*See, e.g.*, Vol. III at 224 (“[N]o two FCC units . . . are alike globally, so they are each unique beasts on their own.”) (Purnell).) So, even if a buyer believed that the product performed sixty-two or sixty-four percent better somewhere, a buyer might nevertheless doubt that it would actually perform that well in *his* unit.

This is not to say that advertisements are useless in this industry. They play a limited, but important, role in getting the seller’s foot in the door of a potential buyer. An advertisement might help spark interest in a potential buyer’s mind. (*See* Vol. II at 38 (Cirihal); *id.* at 64 (Balko); Colmone Dep. at 26 (stating that advertising “gets our attention to want to investigate further”).) It can act as a “conversation starter” for Grace with a potential customer. (Vol. II at 70 (Balko); *see id.* at 156 (Mr. Riley agreeing that the goal of an advertisement is that the customer will see it “and engage in a further dialogue with Grace’s salespeople, technical people, maybe in person, maybe by phone, regarding that product and its potential benefit”).)

Typically, if a refinery is interested, the next step is for sales representatives to follow up with one-on-one communications and meetings with a potential buyer. (*See* Vol. II at 37 (Mr. Cirihal testifying to Grace communicating with customers by phone, email, and in-person meetings).) If the refinery is still interested, the next step would be to persuade it to run a commercial trial of the promoter product at the FCC facility. (*See* Vol. II at 64 (Mr. Balko testifying that Grace would send promotional materials, with the goal that these would “lead to a discussion, which ultimately could lead to a trial, [which is] the objective”).) Buyers almost always run commercial trials at their facilities before making any long-term purchase of a combustion

promoter. (See, e.g., Colmone Dep. at 61 (“We always perform a trial. We may go from a trial to . . . standard commercial use, but there’s always a trial period.”); *see also* Vol. II at 34 (Cirihal); Vol. II at 59–60 (Balko); Vol. II at 132–33 (Riley); Larsen Dep. at 9; Sexton Dep. at 35; Tierney Dep. at 11; Sagaser Dep. at 3; Santos Dep. at 137.) Trials need not be “formal,” but in even an informal trial, the refiner is able to collect “all of the data required to evaluate CO emissions, afterburn, and the effectiveness of a promoter.” (Vol. II at 122 (True).) Without a trial, a purchaser would have “no confidence” in how the product will perform in its FCC unit. (Colmone Dep. at 61.) Refiners continuously monitor performance and emissions metrics from their FCC units. (Aru Dep. at 170–71; Vol. V at 27–28.) For this reason, a refiner will “know pretty quick” after introducing a new product into its unit “whether it’s working or not.” (Larsen Dep. at 8.) Trials typically last about a month. (Vol. II at 65 (Balko).)

Even if a seller succeeds in convincing a refinery to run a trial, there is no guarantee of a long-term sale. The record reflects multiple times when a refinery ran a trial of a combustion promoter, but then decided not to purchase that product long term, and instead to go with a competitor product. (Vol. II at 62–63 (Mr. Balko testifying about the Wynnewood refinery and Citgo refineries trialing Grace’s OCPP but then deciding to purchase GWA’s or other competitors’ products instead); Vol. IV at 132–33 (Mr. Aru testifying that Delek trialed GWA’s GFP but decided not to use it long term), 134–35 (same, for Valero-Wilmington); *see also* Vol. II at 56–57 (Mr. Balko noting that Delek trialed a different type of Grace additive but then went with a competitor’s product).) If, however, the trial is successful, then the refinery may decide to make a long-term purchase of the product.

In short, advertisements have limited value in this industry but, together with other promotional materials such as product data sheets, they may help convince a refinery at least to

run a trial of the product. (See Tierney Dep. at 37 (stating that if promotional materials present data showing improved performance, then Valero is “much more likely to . . . trial it”); *see also* Vol. II at 132–33 (Riley); Larsen Dep. at 23–24.) To be sure, Grace certainly *hoped* its advertisements, coupled with more tailored product information sheets, would have this effect. (See, *e.g.*, Vol. II at 75 (Balko).)

2. Importance of Issues Highlighted in Comparative-Performance Claims

Several of the issues highlighted in the Grace advertisements—control of afterburn, control of CO emissions, control of NOx emissions, and cost-effectiveness—are among the most important considerations for combustion-promoter buyers. (See, *e.g.*, Larsen Dep. at 11–14 (testifying that daily cost, addition rate, and NOx emissions are important considerations); Sexton Dep. at 8–12 (stating that overall “value” is important to Marathon, and that considerations that go into value include cost, effect on NOx emissions, and ability to achieve similar combustion activity while reducing NOx); Tierney Dep. at 12–13, 52–53 (testifying that control of afterburn, control of CO emissions, effect on NOx emissions, and daily cost of promoter usage are all “very important” to Valero, and that performance is also important); Colmone Dep. at 7–8 (testifying that the most important factors to Delek are price, usage, temperature, and NOx emissions); Vol. II at 133–34 (Mr. Riley testifying that the most important factors are afterburn, NOx emissions, and usage rates); Vol. III at 32–33 (Dr. Baillie testifying that the most important factors include “performance” and “price”).)

Given the importance of the issues highlighted in the advertisements, the Court is persuaded that Grace’s comparative-performance claims were, at least in the abstract, likely to influence a refinery’s decision to trial OCPP. Although purchasers are inherently skeptical of promotional claims, they do not *ignore* such claims either. Instead, they consider promotional

claims as part of the totality of information they would review in deciding whether to try out a new product. (See Tierney Dep. at 14 (agreeing that promotional materials are “pieces of information that [Valero] add[s] to the mix in considering the new product.”).) Several witnesses testified that the advertisements, if believed, could have influenced their purchasing decision, and also that it could have influenced their decision if they learned that the claims were false. For instance, Mr. Tierney was asked whether, if Grace had sent documents making comparative-performance claims to Valero-Wilmington, that “could have been a material factor” in Valero-Wilmington’s buying decision, and he said he was “sure” it could have. (Tierney Dep. at 19–20; *see also id.* at 34–35, 41–42, 68–69.) And he agreed that “if another supplier comes in and tries to say that they have the same technology, that could negatively impact one’s reputation as being an innovator” and “negatively impact” sales. (*Id.* at 36.) To be sure, he was not asked—and thus never had occasion to say—whether Grace’s statements *did in fact* have any influence on Valero’s purchasing decision, or *did in fact* reduce his impression of GWA as a company.³⁹ Similarly, Mr. Larsen agreed that it would influence his purchasing decision if he believed that another promoter could “provide equal or better CO to CO₂ combustion promotion while reducing NOx emissions” and that he would be “disappointed” if such a claim were false. (Larsen Dep. at 24–25, 60–62.) Other witnesses’ testimony followed the same pattern. (Sexton Dep. at 27–30; Colmone Dep. at 24–26, 37–38.)

3. Other Factors that Influence Purchasing Decisions

The issues highlighted in the advertisements are far from the only topics driving a refinery’s purchasing decision. Many issues having nothing to do with advertising independently gave Grace

³⁹ Mr. Tierney expressly agreed that “[t]he distribution of metal in a CO promoter particle [is] something material to Valero’s purchasing decisions.” (Tierney Dep. at 12, 38.) But the Court accords little weight to this evidence, as Mr. Tierney simply answered “yes” to counsel’s leading questions, which in any event asked the witness to state a legal conclusion.

a leg up in the marketplace. As Dr. Purnell put it:

The typical customer would consider the risk profile of the new product. They would consider the price, the addition rate, their relationship with the vendor, and even the salesperson, the technical service provided by the vendor. There's a lot of factors that go into the buying decision.

(Vol. III at 224.)

Some refineries are tied up in exclusive supply agreements, in which buyers agree to purchase all their FCC additive requirements from a single supplier, often subject to a “technical opt-out” provision that allows a buyer to trial a competing product if it offers superior performance or technology. (See Vol. II at 51, 56, 58–59 (Balko).)

Although price is undoubtedly an important consideration, Grace’s prices are often higher than its competitors’. (Vol. II at 136 (Riley).) Grace is able to charge more for several reasons. One is that Grace offers high-quality technical support to refineries. (*Id.*; Vol. III at 33 (Baillie).) For example, Grace has an “ECat [equilibrium catalyst] program,” in which Grace regularly analyzes refineries’ used catalysts. (Vol. II at 137 (Riley).) This program is important to refineries because it allows Grace to troubleshoot any problems that may arise in a refinery, often within a twenty-four– to forty-eight–hour window, which is “among the best” in the industry. (*Id.*) GWA also offered an ECat program (through a third-party vendor), but GWA was not able to offer as rapid a turnaround. (*Id.* at 138.) A quick turnaround is important because each day that an FCC unit is offline could translate into “thousands or tens of thousands of dollars” lost. (*Id.*)

Another consideration for buyers is “security of supply,” which essentially means the resilience of the seller’s supply systems to potential disruptions. (Vol. II at 139–40 (Riley).) Grace has manufacturing centers around the world, so if there is a problem with one facility, Grace can shift production elsewhere and continue meeting its customers’ needs. (*Id.*) Grace has a stronger

security of supply than GWA. (*Id.* at 140.)

Moreover, Grace is a much larger company than GWA, and unlike GWA, has “a full range of FCC catalysts and additive products” to offer. (Vol. II at 139 (Riley).) This “really differentiates” Grace from GWA and gives it a competitive advantage. (*Id.*) In some instances—although, as noted above, Grace’s prices were often higher—Grace’s size allowed it to provide package deals in which a refinery might buy multiple different additives or catalysts for a discounted price. (Vol. II at 51 (Balko).) Grace’s larger scale also made it possible for it to offer buyers a “single source solution.” (ECF No. 337 at 32.) As Mr. Riley explained:

Providing that level of convenience to a refiner [by allowing a refinery to purchase multiple products from the same vendor] is something that we hear from refiners is of high interest to them. It means they have to deal with fewer vendors. It means that the vendors they’re dealing with have a more comprehensive understanding of what to recommend to them in their FCC. You know, generally very important thing for them.

(Vol. II at 138.)

Finally, there is the simple fact that “there’s a relationship component” to purchasing decisions in this industry. (Vol. II at 64 (Balko).) As Mr. Balko explained, “some companies prefer to buy from some vendors just based on history.” (*Id.*) One explanation for this is that combustion promoters are a small percentage of refineries’ costs, on the order of five percent or less of refineries’ spending on FCC products. (See Vol. II at 52 (Balko); *see also* Vol. II at 95 (Mr. True testifying that the United-Warren refinery spends about two percent of what it spent on base catalysts as it does on combustion promoters).) For that reason, a refinery may care less about the quality of a combustion promoter than about the overall supply relationship with the firms that sell the refinery the products they need to run their FCC unit.

4. Conclusion

There is plenty of evidence on materiality that cuts both ways. Buyers almost uniformly deny relying on advertisements and insist on making their own evaluations of products. Furthermore, there are many other considerations beyond the issues discussed in the Grace promotional materials that are important to purchasers. This evidence tends to negate a finding of materiality. On the other hand, buyers generally agreed that usage rate and afterburn control are among the most important considerations. Furthermore, to make the decision to begin a trial, a refinery generally must have *some* information to think a product is worth trying—and this information necessarily must come from, in part, from promotional materials. A refinery might not take advertising at face value, but a compelling advertisement might interest it enough to want to trial the product so that the refinery can see for itself whether that product would be a good fit. It is a close question, but on balance, the Court finds that the comparative-performance claims were of the type that were likely to influence a buyer’s decision to trial OCPP.

Grace’s promotional materials were not likely to influence a buyer’s decision to buy OCPP long term, however. Instead, this decision appears to be driven almost entirely by the buyer’s own evaluation of the results of the trial, and it is quite common for a buyer to decide *not* to make a long term purchase after evaluating the results of a trial.

Finally, the so-called “test-validated NOx claims” were also unlikely to influence the buying decision—not even for a trial run, much less for a long-term purchase. As an initial matter, as the Court explained *supra* Part III.E, these claims are not false to the extent that they state or imply that, as a general matter, OCPP is likely to yield lower NOx emissions than CPP. Assuming *arguendo* that it was false for Grace to state that its NOx data came from “pilot plant testing,” when in reality they came from RTU testing, there is no evidence in the record that any buyer

would care about this difference. After all, unrebutted testimony shows that the RTU “mimics the chemistry that happens into the FCC regenerator.” (Vol. VI at 86 (Singh).) And as for the alleged “manipulation” of the NOx data, even assuming that this is the case—an argument that GWA failed to develop at trial—there is a complete dearth of evidence in the record that the difference between the correct NOx data and the “manipulated” data would have been likely to influence a purchasing decision. After all, unless one is endowed with unusual acuity of vision, one would literally have had to squint to see the difference between PTX 222 (allegedly “manipulated” to look more favorable to Grace) and PTX 183.

G. REFINERIES

As a remedy for its Lanham Act claim, GWA seeks disgorgement of profits that Grace earned from sales to twelve refineries. (See ECF No. 338 at 26–36.) The parties do not dispute that Grace sold OCPP to each of these twelve refineries.

The Court will review the evidence specific to each refinery concerning (1) the extent to which it received promotional materials and (2) evidence relevant to the question of whether there was a diversion of sales or lessening of goodwill as a result of Grace’s advertising, including whether other unrelated factors may have led to the sale. As will be explained in more detail below, the Court finds that in most cases, it is unlikely that the advertisements were the reason why refineries purchased OCPP, and that in all cases Grace’s advertisements did not cause GWA any loss of sales or diminution of goodwill.

Before doing so, the Court pauses to make two notes relating to injury that apply generally to all refineries at issue. One is that no witness testified that Grace’s comparative-performance or NOx claims had any *actual* influence on their decision to purchase OCPP or not to purchase GFP (although some agreed that, hypothetically, advertisements, if believed, *could have* influenced their

decision). Likewise, no witness testified that Grace’s advertisements actually caused them to think less of GWA or GWA’s products (although, again, some agreed that the advertisements hypothetically *could have* done so). Second, when asked whether GWA had lost any business to Grace, GWA’s sales director, Ms. Sagaser, was able to identify only a single instance: the Coffeyville refinery (a refiner for which GWA does not seek disgorgement). And even there, the reason Ms. Sagaser gave for the loss of business had nothing to do with Grace’s advertisements. Instead, it had to do with errors on GWA’s end—namely, shipping the wrong product, and shipping a batch of promoter that was defective. (See Sagaser Dep. at 2–6.)

1. CHS–Laurel, Montana

On January 25, 2023, Mr. True, Grace’s account manager for CHS refineries, received an email forwarded from Robert Wadd in CHS’s procurement department “asking for a quote for combustion promoter.” (Vol. II at 95–96; PTX 222 at 1–2.) Mr. True “took the opportunity to introduce them to [OCPP] as a new product that could save them some money, as opposed to the CPP that they had been buying in the past.” (Vol. II at 96.) In his reply email, Mr. True noted that OCPP has “the same promotion activity as the product you used in the past [CPP] but is about \$10/lb less” and has the same “required addition rates.” (PTX 222 at 1.) He listed CPP’s price at \$39.50 per pound, and OCPP’s price at \$29.10 per pound. (*Id.*) Mr. True also stated, “I’ve attached a summary of the early commercial test runs to help you approve the switch along with some additional information on the new product.” (*Id.*) Attached to his email was a seven-page document containing an OCPP case study and product information sheet. (*Id.* at 3–9; Vol. II at 111–12.) The attachment contains both comparative-performance and test-validated NOx claims. (See PTX 222 at 3–8.)

The record does not reflect whether anyone at CHS replied, but Mr. Wadd sent another

email about a month later, on February 22, again asking for a quote. (See PTX 394 at 2.) A Grace employee responded providing pricing and logistical information, and attaching the same OCPP product information document that was attached to the January 25 email. (See generally *id.*; Vol. II at 112–13.)

There is no additional CHS-specific evidence showing that CHS received any other promotional or sales materials. (Cf. Vol. III at 158 (Dr. Baillie saying he “genuinely [doesn’t] know” whether Grace’s NOx claims were disseminated to CHS-Laurel).)

CHS began buying CPP in November 2019 and continued doing so until early 2023. (DTX 538.)⁴⁰ It switched to OCPP in March 2023 and has continued buying at least through 2024., suggesting that it is satisfied with it. (*id.*; Vol. II at 96 (True).) CHS trialed OCPP before making a long-term purchase. (Vol. II at 96; Vol. II at 59 (Balko).)

Previously, CHS also bought base catalysts from Grace. But at some point, probably in 2021 or 2022, CHS stopped buying catalysts from Grace, after “trial[ing] another catalyst to address some concerns about how the catalyst circulated in the unit” and concerns about price. (Vol. II at 97 (True).) Now, CHS-Laurel, uniquely among the refineries at issue, no longer buys any product from Grace apart from combustion promoters. (Vol. II at 50 (Balko).)

There was no evidence that CHS ever purchased or considered purchasing anything from GWA. There was no evidence GWA ever made any sales pitches to CHS or targeted it for sales in any way. There was also no evidence that GWA suffered any loss of goodwill at CHS.

The comparative-performance and NOx claims likely influenced CHS’ decision to trial OCPP, especially given the very close temporal proximity between the date of Mr. True’s email

⁴⁰ DTX 538 is a one-page summary of JTX 80, an Excel spreadsheet containing detailed, raw Grace sales data. It was admitted under Federal Rule of Evidence 1006. (See Vol. II at 42–43.)

and CHS's purchase of OCPP. However, CHS's decision to continue using OCPP beyond the trial period is likelier due to satisfactory trial performance rather than the pre-trial statements made by Grace's sales team. Moreover, it is not likely that these claims cause GWA to suffer any actual or likely diversion of sales or loss of goodwill. Because CHS had already been purchasing CPP for several years, it is likely that, if it had not been persuaded to switch to OCPP, it would have simply continued using CPP. And, even if CHS had been open to switching vendors, the Court has no reason to think it more likely that CHS would have gone with GWA rather than JM or another competitor.

2. Citgo–Lake Charles, Louisiana and Lemont, Illinois

There was no evidence of any specific Grace promotional materials sent to Citgo.⁴¹ Dr. Baillie agreed that Grace likely would have sent Citgo-Lake Charles the OCPP data sheets, including comparative-performance and NOx claims. (Vol. III at 153–54.) But later in his testimony, Dr. Baillie admitted that he does not know whether Grace actually sent this information. (*Id.* at 159.)

Citgo decided to invite several different vendors to trial their products before deciding which combustion promoter to purchase. As Mr. Balko explained:

[Citgo] ran a tender process for the business and all of their refineries in Texas and Louisiana and Chicago. And basically each vendor got a shot to try, and in the end they took all the information, the pricing, you know, the performance of the trial, relationship, and made a decision, and we [Grace] were not chosen in that case.

(Vol. II at 63.)

⁴¹ As explained *supra* Part III.C.1, it is unlikely that a refinery read either the PTQ Article or the Grace blog post, unless there is additional evidence *specific to that refinery* showing that it had, in fact, done so. The Court reiterates that point here and notes that it applies to all refineries at issue, though it will not repeat it for each refinery.

After the conclusion of the trials, Citgo decided to go with GWA. (Vol. II at 63; *see also* PTX 74 (October 2022 email from Mr. Aru to Valero representatives stating that “[w]e have beaten Grace’s [OCPP] at Citgo, Lake Charles”.) Grace’s sales data indicate that at Lake Charles, Citgo began purchasing OCPP in April 2022 and continued until sometime in 2023, at which point it stopped. At Lemont, Citgo purchased OCPP for only a brief period in November (and possibly December) of 2023 before stopping. Neither refinery had purchased CPP or OCPP before or after that point.

It is likely that at some point somebody from Grace sent Citgo promotional claims. But it is highly unlikely that this had any meaningful effect on Citgo’s purchasing decision. Instead, the evidence shows that Citgo independently made the decision to trial at least Grace and GWA’s combustion promoters, and then on the basis of those trials decided to go with GWA’s product. It is also highly unlikely that any false advertising sent to Citgo caused GWA any loss of goodwill or diversion of sales.

3. CVR-Wynnewood, Oklahoma

CVR-Wynnewood purchased OCPP from September 2022 until sometime in 2023. (DTX 538.) Before and after that point, CVR used GWA’s combustion promoter, GFP. (Vol. II at 63.) Mr. Balko testified to the circumstances of Wynnewood’s purchase of OCPP:

[A]s part of one of our contract extensions for the base catalyst, we negotiated, you know, as part of—let’s say, a limitation of price increase, we negotiated the ability to do a trial of the OCPP, once again[in the]context of paying for a price break with the favored price on the additive.

(Vol. II at 62.) Under the terms of this agreement, Wynnewood had a contractual obligation to trial OCPP. (*Id.* at 62–63.) On the basis of the results of that trial and also because of price considerations, Wynnewood went back to using GWA’s product at the conclusion of the trial. (*Id.*)

The other evidence in the record pertaining to Wynnewood, though limited, is consistent with Mr. Balko's testimony. The record contains two internal Grace emails summarizing Grace's quarterly or monthly calls with Wynnewood. (PTX 388, 399.) They show that Grace's sales team recorded that they had discussed with Wynnewood a trial of OCPP which was expected to occur in "the beginning of Q4" 2022. (*Id.*) There is also an email chain in the record reflecting a June 2022 correspondence between Grace and CVR. (JTX 42.) In that email chain, a Grace representative responded to CVR's request for a quote by sending it OCPP product information, including test-validated NOx claims. (*See generally id.*; Vol. III at 182–83 (Baillie).) The document does not contain comparative-performance claims.

It is unlikely that the test-validated NOx claims in the OCPP data sheet had any meaningful effect on Wynnewood's decision to trial OCPP. Instead, the unrebutted evidence shows that Wynnewood's decision to trial OCPP was mainly due to Wynnewood's contractual obligation to do so, possibly also coupled with one-on-one interactions with Grace salespeople. It is also unlikely that GWA suffered any actual or likely diversion of sales or loss of goodwill.

4. Delek

There are four Delek refineries relevant to this lawsuit—Delek—Krotz Springs, Louisiana; Delek—Big Spring, Texas; Delek—El Dorado, Arkansas; and Delek—Tyler, Texas.

a. *Delek-Grace Relationship*

Delek and Grace have a close business relationship. As of January 1, 2020, Delek had supply agreements with Grace, pursuant to which all relevant Delek refineries were required to buy all their FCC catalysts and additives from Grace as of June 1, 2020, subject to a "technical opt-out clause" that became operative at the beginning of 2021. (Colmone Dep. at 19–22; Vol. II at 50 (Balko).) One advantage of the supply agreement for Delek is that Grace was able to offer

bulk discounts on its products. (See Vol. II at 51 (Balko).) Delek and Grace subsequently extended the supply agreement twice, such that it runs until September 30, 2025. (JTX 16–17, 73 (original supply agreement and extensions thereto); Colmone Dep. at 20.) Delek and Grace hold business-review meetings twice a year. (Colmone Dep. at 51.)

The “technical opt-out” provision in the supply agreement with Grace permitted Delek to try competitor products with improved performance. (Colmone Dep. at 22–24.) To exercise this right, Delek would need to “identif[y] a commercially available [product] from a company other than Grace that would provide improved performance to [Delek] compared to” Grace’s products. (JTX 16 at 9.) Theoretically, Grace could refuse to agree to an opt-out if the competitor’s product was not technologically superior. (See *id.*) Although GWA argues that Delek felt unable to exercise the opt-out provision because Grace’s advertisements implied that GWA’s product was inferior or at best equivalent to Grace’s (see ECF No. 339-1 at 25), the Court finds this argument speculative and not supported by the weight of the evidence. Rather, the weight of the evidence shows that the advertisements had no impact on Delek’s perceived ability to exercise the opt-out clause if it wanted to do so.⁴² To be sure, Mr. Colmone agreed to the hypothetical that, *if* he had believed Grace’s claims about GWA’s performance, then it would have deterred him from trying GWA’s products. (Colmone Dep. at 25–26.) But there is no evidence that Mr. Colmone (or anyone else at Delek) actually *did* believe Grace’s claims, and as noted above he never even read PTQ.

⁴² Mr. Aru testified that he “perceive[d] that Delek believed that they could not use [GFP]” because Delek thought that OCPP used the same technology as GFP. (Vol. IV at 133–134.) The Court granted Grace’s motion to strike that testimony as hearsay. (*Id.* at 135.) However, even if Mr. Aru’s statement were in evidence, the Court would give it little weight, as it is speculative and far less probative when compared to the testimony of Mr. Colmone—who, as Delek’s Director of Process Technology, is responsible for evaluating the technical specifications of different combustion-promoter offerings (Colmone Dep. at 2–4), and who is accordingly in a far better position to know what Delek thought about the opt-out provision.

Moreover, Mr. Colmone testified that, under his understanding of the agreement, he felt free to trial a competitor's product even if Grace disagreed that the competitor had improved performance, because Delek was free to do its own evaluation. (*Id.* at 25.)

b. *Grace's Sales Communications with Delek*

Between July 2021 and February 2022, Grace communicated with Delek about OCPP fairly frequently. It appears that Delek—not Grace—initiated the conversation on July 15, 2021, when a Delek employee emailed Grace sales representatives expressing interest in any new, low-NOx combustion promoters that Grace may have had. (PTX 183 at 2.) A Grace representative responded on July 20, explaining the difference between platinum- and palladium-based promoters and stating that “[o]ur latest CO Promoter is called ‘Optimized CP®P’ and through advances in alumina technology it allows CO promotion to be maintained at a lower palladium content, making it a more cost-effective solution compared to our standard palladium-based additive CP®P.” (*Id.* at 1.) He also stated that OCPP “would certainly result in lower NOx compared to CP®5 [another type of Grace combustion promoter] being used at [Delek-]El Dorado.” (*Id.*) The Grace representative also attached OCPP product information sheets, which contained test-validated NOx claims. (*See id.* at 11–12.)

In September 2021, Mr. Colmone attended a technical review meeting with Grace. (Colmone Dep. at 39–40.) Grace prepared a slide deck for the presentation which it sent to Delek after the meeting. (*Id.* at 41; PTX 191 (Grace slide deck).) Deep into the “Appendix” of the slide deck was a section on Grace’s OCPP. (PTX 191 at 58–62.) This section makes comparative-performance claims and even identifies Grace’s competitor by name as GWA. (*See id.* at 59.) But Mr. Colmone testified “[t]here’s very low likelihood that we actually got to this” in the meeting, because it was unlikely that the appendix to the report would have come up at all. (Colmone Dep.

at 41.) Mr. Colmone had no memory of the claims in this portion of the appendix, (*see id.* at 42), and when asked if—as of September 2021—Grace had told Delek that the competitor in the case study was GWA, Mr. Colmone said no. (*Id.* at 40.)

As mentioned above, Delek has two annual business review meetings with Grace. (Colmone Dep. at 51.) These are more intensive than the monthly technical reviews, and at these meetings the parties review the entirety of the presentation. (*Id.* at 52.) Mr. Colmone attended one such biannual meeting with Grace in May 2022. (Colmone Dep. at 51.) Grace presented a slide deck, comprising over one hundred pages, entitled “Delek FCC Business Review.” (JTX 19 at 1.) Pages thirty to thirty-two of the slide deck focused on combustion promoters and contained comparative-performance claims and test-validated NOx claims. (*Id.* at 30–32.) Unlike in the September 2021 presentation, there was no specific reference made in the slides to GWA.

A Grace representative also sent emails about OCPP to Delek in July and August 2022, one of which attached OCPP data sheets making NOx claims and comparative-performance claims. (JTX 20; Colmone Dep. at 54–57.)

There is no evidence that anybody at Delek read either the PTQ Article or the Grace blog post. In fact, Mr. Colmone denied even knowing what PTQ is. (Colmone Dep. at 50.)

Mr. Colmone testified that he generally takes statements from Grace at face value and is inclined to believe that they are true. (Colmone Dep. at 35.) He remembers discussing OCPP at some point with Grace, and he testified that he understood OCPP to have similar performance to CPP but at a lower price. (*Id.* at 32–34.) He does not recall discussing that the competitor product referenced in the comparative-performance claims was GWA’s GFP. (*Id.* at 36–37.)

c. Delek’s Purchasing History

Purchasing decisions at Delek are the result of a “communal” decision-making process

involving individuals at the corporate level such as Mr. Colmone and individuals at the refinery level. (Colmone Dep. at 4.)

In 2019, Delek-Krotz Springs trialed GWA's GFP, and found that it outperformed the incumbent JM product. (Vol. IV at 132 (Aru); JTX 15.) The Krotz Springs refinery subsequently shut down from 2020 through April 2021 due to lack of demand. (Colmone Dep. at 5–7.)

Delek-Krotz Spring eventually came back online and switched over to OCPP in February 2023. (DTX 538.) Meanwhile, Delek-Big Spring began buying CPP sometime in 2020 and switched over to OCPP to December 2023. (*Id.*) Delek-El Dorado began buying CP5 (another type of Grace combustion promoter) in 2021 and switched over to OCPP in February 2022. (*Id.*) And Delek-Tyler began buying CPP in February 2021 and switched over to OCPP in March 2023. (*Id.*)

Delek trialed the promoters before making long-term purchases, although the trials may not have been “official[ly]” labeled as such. (Colmone Dep. at 63.) In each instance, Delek was satisfied that OCPP had similar performance at a lower cost as compared to CPP. (*Id.*)

d. Conclusion

It is likely that Delek’s decisions to trial OCPP and ultimately buy it long term were due mainly to Delek’s strong preexisting relationship with Grace and its belief, arising from meetings with Grace sales representatives, that OCPP offered similar performance to CPP at a lower cost. It is not likely that it ever saw the PTQ Article or Grace blog post; *a fortiori* it is unlikely that either had any effect on Delek’s purchasing decisions. Although Delek was exposed to some promotional materials in sales outreach, it is likely that these materials had little—if any—effect on the purchasing decision.

Delek had many compelling reasons to buy from Grace that had nothing to do with the

advertising at issue in this case, the most important being that Delek was *contractually obligated to do so*. Because of the preexisting business relationship and contractual obligations, it is unlikely that Grace's comparative-performance claims or NOx claims had any significant impact on the purchasing decision.

And, even if they did have an impact, it is unlikely that GWA suffered any actual or likely diversion of sales or lessening of goodwill. Because of the strong preexisting relationship between Delek and Grace, it is likely that even if Delek had not switched to buying OCPP, it still would have bought one of Grace's other combustion-promoter products instead. This conclusion is reinforced by the fact that Delek has not reverted to CPP, let alone switched to a competitor product, even after learning about the instant litigation. (DTX 538.) Moreover, there is no evidence that Delek was considering buying combustion promoters from any supplier other than Grace; instead, the record reflects something close to the exact opposite, that Delek affirmatively initiated conversations with Grace about combustion promoters. Finally, as noted *supra* Part III.G.4.a, the evidence suggesting that Delek was dissuaded from purchasing GWA's product because it believed it was not covered by the "technical opt-out" provision is weak and unconvincing.

In short, there was a lot of momentum, having nothing to do with Grace's advertising, pushing Delek toward at least trialing OCPP. Even in the absence of Grace's comparative-performance and NOx claims, it is likely that Delek would have trialed and ultimately bought OCPP either way. And even if it had not, the next most likely outcome is that Delek would simply have bought a different type of Grace combustion promoter.

5. ENAP, Talcahuano, Chile

ENAP is the Chilean national oil refinery. (Vol. II at 59 (Balko).) It is located in

Talcahuano, Chile. (*See* DTX 538.)

There is no ENAP-specific evidence in the record showing that ENAP received either the PTQ Article or the Grace blog post, or indeed any advertising or sales materials from Grace at all. Based on Dr. Baillie's testimony that he would generally expect OCPP product information sheets to be shared with customers (*see* Vol. III at 131), it is entirely possible that at some point ENAP did receive such communications. But even assuming it did, the Court has no way of knowing when those communications might have occurred, nor does it know whether anyone at ENAP actually read them, much less acted on them.

ENAP had a supply agreement with Grace (Vol. II at 58 (Balko)) and purchased other products from Grace in addition to OCPP (*id.* at 49–50; Vol. II at 99 (True)). ENAP had been purchasing CP5 (another Grace combustion promoter) since 2018 and switched over to OCPP in 2022. (DTX 538.) It trialed OCPP before making a long-term purchase. (Vol. II at 59).

GWA introduced no evidence of any GWA sales efforts at ENAP. Further, Mr. True—who was responsible for Grace's Latin American sales accounts—was not aware of any GWA sales efforts there. (Vol. II at 98–100.)

It is unlikely that Grace's advertisements had any meaningful effect on ENAP's decision to trial and buy OCPP long term. Furthermore, it is unlikely that the advertisements caused GWA any actual or likely diversion of sales or loss of goodwill.

6. PBF–Chalmette, Louisiana

In July 2022, a Grace salesperson sent an email to some individuals at PBF Energy with an attachment entitled “2022 Grace FCC additives for Chalmette.pdf.” (JTX 316; Vol. III at 152 (Baillie).) The text of the email indicates that it is a follow-up from a two-day, in-person meeting between Grace and Chalmette representatives. (*See* JTX 316 at 1.) The attachment is ten pages

long and discusses various issues not relevant to this lawsuit, such as Grace’s “light olefin additives.” (*See generally id.*) It does not contain any comparative-performance claims. But the last two pages do contain charts that appear to show how NOx emissions vary between different alumina bases and between CPP and OCPP. (*Id.* at 10–11.) Dr. Baillie testified that it “would be the standard” for Grace’s sales team to send Chalmette an OCPP data sheet. (Vol. III at 153.)

It is unlikely that any buyer at Chalmette read either the PTQ Article or the Grace blog post, there being no evidence in the record indicating that that anyone had actually done so.

Chalmette began purchasing CPP in December 2020, and it switched over to purchasing OCPP sometime in 2023. (DTX 538.)

Chalmette has a supply agreement with Grace. (Vol. II at 58 (Balko).) Before switching to OCPP, it trialed the product. (*Id.* at 59, 62.) Chalmette also purchased products from Grace other than combustion promoters. (*Id.*)

There was no evidence that Chalmette ever purchased or considered purchasing anything from GWA. There was no evidence that GWA ever targeted Chalmette for sales in any way. And there was no evidence that GWA suffered any loss of goodwill at Chalmette.

The Court finds it likelier that Chalmette’s decision to trial (and ultimately, purchase long term) OCPP was due to (1) Chalmette’s supply agreement with Grace, (2) the fact that Chalmette purchased other products from Grace, and (3) the fact that it had purchased CPP for several years; it is less likely the decision to trial was based on statements made in the last two pages of a ten-page attachment to an email sent at least six months before Chalmette bought any OCPP. Further, even if Chalmette’s decision *was* attributable to these statements, the Court does not find it likely that Chalmette would have instead purchased GWA’s GFP had the statements not been made. Instead, the Court finds it more likely that Chalmette would have simply continued using CPP.

And even if Chalmette did decide to switch suppliers, it is at least as likely that Chalmette would have bought from JM or BASF—both of which also offered “low NOx” promoters—as it is that it would have bought from GWA. Finally, in the absence of any evidence on the subject, the Court cannot find it likely that GWA lost or was likely to lose goodwill at Chalmette as a result of the advertising.

7. HF Sinclair—Tulsa, Oklahoma

Just like with ENAP, there is no refinery-specific evidence of Grace sending promotional or advertising materials to HF Sinclair. HF Sinclair has a supply agreement with Grace and also purchases products from Grace other than combustion promoters. (Vol. II at 49–50, 58 (Balko).)

HF Sinclair had been buying CPP and CP5 since 2018 before switching to OCPP in June 2023. (DTX 538.) It trialed OCPP before making a long-term purchase. (Vol. II at 59 (Balko).) There is no evidence of GWA sales efforts to HF Sinclair.⁴³

In the absence of any refinery-specific evidence showing that HF Sinclair received any advertisements, the Court finds that HF Sinclair’s decision to trial and buy OCPP long term was due mainly to HF Sinclair’s preexisting business relationship with Grace. Moreover, even assuming HF Sinclair *did* receive Grace advertisements making false statements, and even assuming that these advertisements did influence HF Sinclair’s decision to at least trial OCPP, it is

⁴³ There is evidence of GWA sales efforts in 2019 directed toward HF Sinclair’s sister refinery, Sinclair Tulsa. (See Vol. VI at 15–20 (Herring).) In 2019, Sinclair Tulsa (which is not otherwise relevant to this action) trialed GFP and decided not to continue using it after determining that it was less effective than a competitor product. (*Id.* at 19–20 (Herring).) Grace argues that the fact that HF Sinclair’s sister refinery trialed and rejected GFP is another reason to find that there was no injury to GWA. (See ECF No. 337 at 50.) But the Court attaches little weight to this fact. There is no evidence about Sinclair’s corporate structure in the record, so the Court cannot know whether Sinclair Tulsa would have shared GFP’s poor results with HF Sinclair, much less what effect (if any) that information might have had on HF Sinclair’s purchasing decisions.

unlikely that GWA suffered any diversion of sales or loss of goodwill. The evidence does not support a finding that HF Sinclair was otherwise likely to buy from GWA, nor that HF Sinclair has any lesser opinion of GWA as a result of Grace’s advertisements.

8. Shell-Pernis, Netherlands

Shell-Pernis is located in the Netherlands. (See PTX 355 at 6.) There is no refinery-specific evidence that Shell-Pernis read either the PTQ Article or the Grace blog post. Instead, the evidence of Grace’s sales communications to this refinery consists of a series of email exchanges between Shell and Grace personnel from January to March 2021. (JTX 44; PTX 355–57; *see also* Vol. III at 184–89 (Baillie).) The emails show the two sides exchanging technical information on the then-current performance of Grace’s combustion promoter products at the Shell-Pernis refinery. Then, on February 3, 2021, Pietro Greco, Grace’s sales manager for Europe, emailed Rob Hartman, an engineer at Shell-Pernis. (Vol. III at 184.) Mr. Greco wrote that he knew that “there is high priority to reduce operating cost during this challenging period for [the] refining industry,” and that as a result he “will be pleased to discuss with you the possibility to make a trial with a new CPP (Ps based) product named ‘Optimized CPP.’” (PTX 355 at 1.) He wrote that the product offered “about €52,000/year in savings.” (*Id.* at 2.)

A few weeks later, on February 22, Mr. Hartman responded, expressing interest and asking Grace to send “more information (background, test results etc.) on this” so that Shell “can decide if [it is] interested.” (PTX 255 at 1.) Mr. Greco responded by sending an OCPP data sheet that contained the challenged test-validated NOx claims. (*Id.*) Mr. Hartman asked for further information, and after a few weeks he followed up again, saying “[s]orry to push you, but we are very interested in the ‘optimized CPP’ and wish to proceed asap” and asking when Grace would have more detailed information to share. (JTX 44 at 1.) Dr. Baillie responded by email on March

15, in which he shared the results from an anonymized trial from a refinery “in North America,” which—according to Dr. Baillie—“confirms a similar performance using [OCPP] compared to the Regular CPP, which is the objective.” (*Id.*) The attachment to Dr. Baillie’s email contains an OCPP case study containing the comparative-performance claims. (*See id.* at 10.) The following day, Mr. Hartman replied, asking a technical follow-up question regarding the carbon monoxide levels in one of the charts in the case study; Dr Baillie responded explaining that the difference had to do with “a lower Regen Dense Bed temp.” (PTX 357 at 1.) Mr. Hartman responded again: “Clear, thanks Colin. We will now start the internal process to approve changing ‘CPP’ with ‘CPP Optimized.’” (*Id.*) Shell began purchasing OCPP that same month, March 2021. (DTX 538.)

The other evidence pertaining to Shell-Pernis is as follows. Shell had a supply agreement (or “master agreement”) with Grace and purchased products in addition to combustion promoters from it. (Vol. II at 49–50, 58 (Balko).) Shell-Pernis trialed OCPP before making a long-term purchase. (Vol. II at 60 (Balko); JTX 69 at 7.) Shell-Pernis had been purchasing CPP since at least 2018 before switching over to OCPP. (DTX 538.) There is no evidence that GWA sent any sales or marketing communications to Shell-Pernis.

The Court finds that Grace’s sales and marketing communications in February and March 2021—including the comparative-performance and NOx claims made in the OCPP product sheets—in fact influenced Shell-Pernis’s decision to trial OCPP. The Court bases this finding primarily on Mr. Hartman’s statements in the email exchange. However, the Court also finds that these statements did not cause, nor were they likely to cause, any injury to GWA. The record is clear that Grace and Shell-Pernis had a longstanding business relationship, and there is no evidence suggesting that Shell-Pernis was considering purchasing from any competitor (much less GWA in particular) when it made the decision to trial OCPP. Instead, the evidence shows that Shell-Pernis

affirmatively sought Grace out, was “very interested” in OCPP from the beginning, and wanted to learn more about it as soon as possible. Given these facts, and given the other facts showing the close connection between Grace and Shell-Pernis, the Court finds that—in the absence of Grace’s sales and marketing pitch—the likeliest alternative is that Shell-Pernis would have simply stayed with Grace’s other combustion promoters. And even if it would have switched to a competitor (a hypothetical for which, again, there is no support in the record), it is at least as likely that it would have gone with another company such as JM as it is that it would have switched to GWA.

9. Suncor—Denver, Colorado

There is no refinery-specific evidence that Suncor read either the PTQ Article or the Grace blog post. The record does contain an October 24, 2023, email from a Grace technical services representative to someone with a Suncor email address, referencing an in-person meeting that had occurred the prior evening and providing a slide deck for use in a presentation that was to occur later that day. (PTX 318; Vol. II at 116–17 (True).) The slide deck contains comparative-performance claims and test-validated NOx claims.⁴⁴ (See PTX 318 at 6–7.) Suncor’s response to this email, if any, is not in the record.

Suncor purchased CPP since at least 2018 and switched over to OCPP in March 2024. (DTX-538.) Before making a long-term purchase of OCPP, it trialed the product first. (Vol. II at 61 (Balko); Vol. II at 98, 108 (True).) Suncor had a supply agreement with Grace and purchased other products from it. (Vol. II at 49–50, 58.) There is no evidence of any GWA sales or

⁴⁴ In its post-trial brief, GWA makes much of purported inconsistencies between the NOx data contained in the Suncor attachment and the NOx data from the 2009 Grace pilot plant study. (See ECF No. 339-1 at 12–14.) The Court does not focus on these claims here because GWA never adduced any testimony at trial about how the Suncor attachment compared with pilot plant NOx data. *See supra* Part III.E.2. In any event, even if the Court found these claims false, the Court would still find that GWA did not likely suffer any diversion of sales or loss of goodwill at Suncor.

promotional communications with Suncor.

The Court does not know why Suncor decided to trial OCPP. The single email containing promotional materials is dated approximately five months before Suncor purchased OCPP, and there is no evidence as to how Suncor responded to that email. But even assuming that the comparative-performance and NOx claims influenced Suncor's decision to trial OCPP, the Court does not find that this caused any injury to GWA in the form of diversion of sales or loss of goodwill. As for the former, there is no evidence that GWA would have otherwise made a sale to Suncor (as is a pattern with the other refineries, it is at least as likely that Suncor would have instead continued purchasing another Grace combustion promoter or bought from a competitor such as JM as it is that Suncor would have switched to GWA). And as for the latter, there is simply no evidence that Suncor's estimation of GWA declined in any way.

10. Total—Port Arthur, Texas

The record with respect to Total is almost exactly the same as it is with respect to HF Sinclair and ENAP. There is no evidence that Total read the PTQ Article or the Grace blog post, nor is there any evidence of any Grace sales or marketing communications to Total. There is also no evidence of any GWA sales or promotional activity directed toward Total.

Total began purchasing CPP in October 2019 and switched over to OCPP in May 2024. (DTX 538.) Before purchasing OCPP long-term, it trialed it first. (Vol. II at 59 (Balko).) Total has a supply agreement with Grace. (*Id.* at 58.)

It is certainly possible—perhaps even likely—that Total, like the other refineries, at some point received a Grace promotional statement making some of the challenged statements. Given the paucity of evidence specific to Total, it would be pure speculation for the Court to surmise what effect—if any—such statements would have had on Total. Even assuming that such

statements influenced Total’s decision to trial OCPP, there is no evidence that this caused a diversion of sales or lessening of goodwill for GWA. Because of the supply agreement, it is likely that Total would have simply purchased a different kind of Grace combustion promoter if it did not buy OCPP. And even if Total decided to look elsewhere, it is just as likely, if not more so, that Total would have switched to JM or some other competitor instead of to GWA.

11. United–Warren, Pennsylvania

United has been a Grace customer for over twenty years. (Vol. II at 91 (True).) The United–Grace relationship is so close, in fact, that at the twenty-year mark Grace held a “little ceremony” at which it presented United with a plaque to commemorate the occasion. (*Id.* at 92.) United has a supply agreement which requires it to “buy all of the needs for [its FCC] unit from [Grace],” including the base catalysts, combustion promoters, and other additives. (Vol. II at 92 (True).) The supply agreement also provides United with Grace technical support services. (*Id.* at 94.) Unlike many other supply agreements, United’s contract contains no technical opt-out clause. (Vol. II at 58 (Balko).)

There is no refinery-specific evidence showing that United read either the PTQ Article or the Grace blog post. But the record does show that, in January and again in August 2022, Grace held quarterly technical review meetings with United, and that on a single page midway through a fifty-plus–page slide deck, there was a slide about OCPP with a chart showing NOx emissions of CPP compared to OCPP. (PTX 369 at 35; PTX 370 at 38.) During the August 2022 meeting, which lasted two hours, Mr. True presented on OCPP among other topics. (Vol. II at 93; *see* PTX 370.) The call notes from after the meeting indicate that Grace stated that “CPP is expected to be phased out next year in favor of optimized CP P. The new product provides the same CO promotion activity without increasing NOx at an improved cost position.” (PTX 361 at 2.) The

next month, on September 23, 2022, a United representative emailed the Grace team to state that they “are going to go forward with the [OCPP] as well.” (*Id.* at 1.) There is no evidence that United ever received any comparative-performance claims.

United purchased CPP since at least 2018 and switched to OCPP in September or October 2022. (DTX 538; PTX 362.) United trialed OCPP before making a long-term purchase. (Vol. II at 61–62 (Balko).)

GWA adduced no evidence of any GWA sales or marketing efforts directed toward United. Mr. True, Grace’s account manager for the United account, testified that he knew of no such GWA efforts and that he expected he would have known were there any. (Vol. II at 94–95.)

Even assuming that the NOx claims influenced United’s decision to trial OCPP, it is unlikely that GWA suffered any injury in the form of diversion of sales or lessening of goodwill. Given the close business relationship between United and Grace, and given that United was *contractually obligated* to buy its combustion promoters from Grace, it is likely that United would have simply purchased a different Grace combustion-promoter product if it did not purchase OCPP. And, even if United decided to look elsewhere, it is just as likely, if not more so, that United would have switched to JM or some other competitor instead of to GWA.

12. Valero—Memphis, Tennessee and Wilmington, California

Each Valero refinery has “latitude” to make independent purchasing decisions for additives, although the corporate level is involved in the decision to some extent. (Tierney Dep. at 7–8.) For example, the Valero refinery in Quebec decided (at least for some period of time) to purchase GFP even while other Valero refineries were purchasing Grace combustion promoters. (See Tierney Dep. at 51–52.) But Valero’s corporate office has an important role in facilitating testing of additives and acting as “gatekeeper” over which additives are approved for testing. (*Id.*

at 37–38.)

As discussed *supra* Part III.C.1, one Valero manager (Mr. Federspiel) had read the PTQ Article around the time it came out; another (Mr. Tierney) did not. (See Federspiel Dep. at 12; Tierney Dep. at 47.) Even if they had not read the article, however, people at the Valero corporate office were generally aware of Grace’s claims to have made an improved combustion promoter, and they were “confused” by Grace’s claims because it gave them the impression that Grace may have copied or licensed GWA’s technology. (See Tierney Dep. at 39.) Grace may have also sent an OCPP data sheet to Valero’s corporate team, containing test-validated NOx claims, in October 2022. (Federspiel Dep. at 5, 7; PTX 57.)⁴⁵

Valero became aware of GWA’s false-advertising allegations through the instant litigation, but continued buying OCPP regardless. (Vol. II at 48–49 (Balko).)

a. *Valero-Wilmington*

Valero-Wilmington (“Wilmington”) bought CPP since at least 2018. (DTX 538.) But, in 2020, it decided to trial GFP. The trial of GFP took place between June and early December 2020. (Vol. IV at 135 (Aru).) The result of that trial was that GFP “outperformed the product [Wilmington was] using before[,] which was the Grace CPP product.” (*Id.* at 135–36.) After that trial, however, Wilmington did not switch over to GFP permanently. Instead, between December 2020 and January 2021, Wilmington ran a trial of OCPP. (Vol. III at 47 (Baillie)⁴⁶; *see generally* PTX 88.) According to an internal Grace email, the results from that trial showed that OCPP

⁴⁵ During the deposition of Mr. Tierney, GWA counsel showed him an exhibit designated as “Tierney exhibit five,” which appears to be an OCPP data sheet that contains test-validated NOx claims. (See Tierney Dep. at 38.) But when asked, Mr. Tierney stated that he had no memory of reading the document before the deposition and that he was not aware of anyone else at Valero having read it. (*Id.* at 56.)

⁴⁶ Dr. Baillie’s statement that the trial ran from “December 2022 [sic] and January 2021” was evidently an accidental misstatement.

“provid[ed] at least comparable performance to Regular CPP and GWA product, which was the objective.” (PTX 94 at 2.)

After that second trial, Wilmington underwent a scheduled shutdown or “turnaround” of the FCC unit for maintenance purposes, which lasted for about forty-five to fifty days. (Tierney Dep. at 60–61; Lewis Dep at 8.) During the turnaround and for a few weeks thereafter, engineers at the site worked extremely long hours and were unlikely to have time to carefully review the analysis of a combustion-promoter trial. (Tierney Dep. at 61–62.) At that time, some of the engineers were likely new and inexperienced and might have been more inclined to trust statements made by a respected and well-established company like Grace—a situation Grace was happy to exploit. (See Tierney Dep. at 63; PTX 363 at 2 (internal Grace email stating that Valero’s engineer is “new to FCC,” and that Grace is “attempting to build a new Grace advocate in [him] and things are progressing well”); Vol. III at 181 (Baillie).)

On January 20, 2021, a Grace employee emailed some individuals at the Valero corporate office a slide deck entitled “Monthly FCC Updates,” the last slide of which contained comparative-performance claims, and which purported to show that, at the Wilmington trial, CPP and OCPP outperformed GFP by sixty-two and sixty-four percent, respectively.⁴⁷ (PTX 65 at 2, 8; Tierney Dep. at 44.) The slide specifically referred to the GWA product, “GFP.” (*Id.*) Grace sent Wilmington an updated analysis of the Wilmington OCPP trial a few months later, in August 2021. (PTX 67; Tierney Dep. at 44–47.) This time, the comparative-performance claims were reduced

⁴⁷ The Court infers that promotional materials sent to Valero’s corporate office may have been shared with individual refineries, given that the units cooperate on the question of what additives to purchase. But there is no evidence that individual Valero refineries share promotional materials with each other. So, as to the question of what promotional materials Wilmington may have been exposed to, the Court does not consider relevant the fact that Grace promotional materials were sent to other Valero refineries.

to claims of thirty-percent improvement over GFP for OCPP and fifty-two-percent improvement over GFP for CPP. (PTX 67 at 9.) Wilmington started buying OCPP in 2020 and has continued doing so. (DTX 538.)

Wilmington’s decision to trial OCPP occurred before it received any promotional claim, so logically no Grace promotional claim could have caused that decision. As for Wilmington’s decision to continue using OCPP past the trial period, it is possible that Grace’s comparative-performance claims played a role. However, GWA’s theory that Wilmington’s engineers were too overworked and inexperienced to conduct their own evaluation of the data (and that Wilmington bought OCPP long-term because these junior engineers blindly accepted Grace’s claims) is implausible in light of the evidence. There is no evidence that these junior engineers—rather than more senior managers and executives—were the ones actually making buying decisions. The ones who *do* seem to drive the decisions, including the two Valero witnesses whose testimony is part of the trial record, uniformly emphasize that the long-term purchasing decision is driven primarily by their own analysis of trial data. As the Court noted *supra* Part III.F.1, Mr. Federspiel, Valero’s director of FCC technologies, repeatedly denied that he or—to his knowledge—anyone at Valero would ever rely on promotional materials such as the PTQ Article or OCPP data sheets in making a long-term purchasing decision. (*See* Federspiel Dep. at 12–15.) And although Mr. Tierney, Valero’s director of catalyst procurement, agreed that hypothetically Grace’s advertisements *could have* influenced engineers at Wilmington and that such statements, if believed, *could have* prevented Valero from considering claims from a small supplier like GWA, he also testified that he was not aware of anyone at Valero *in fact* diverting combustion-promoter business from Grace to GWA as a result of Grace’s promotional materials. (*See* Tierney Dep. at 55–60.)

By email in October 2022, and then in person in April 2023, Mr. Aru shared GWA’s

allegations of false advertising with the individuals responsible for Wilmington's purchasing decisions. (Vol. V at 69–74, 77–79; JTX 7.) And yet, despite being apprised in detail of the false-advertising allegations, Wilmington has not purchased any GFP and instead has since bought almost \$3 million worth of OCPP. (*See id.* at 74–75.)

Unfortunately, although the parties deposed two different Valero corporate witnesses, neither party deposed anyone at Wilmington who could speak to what the Court considers the ultimate question: why, in fact, did Wilmington decide to go with OCPP long term rather than GFP, after having trialed both products? Perhaps the question went unasked because both parties were afraid of the answer. In any event, the Court is left to guess at the likeliest answer to this question. And, when key evidence is lacking, the party with the burden of persuasion suffers. There is evidence tending to show that Grace's promotional materials could have had an effect on that decision. There is also evidence that Grace sought the opportunity to trial OCPP for the purpose of preventing GWA from taking the Wilmington account. But there is also evidence tending to show that these promotional materials did not actually influence Wilmington's decision. At the end of the day, the Court must decide which story is more likely, and it finds more probable the explanation that Wilmington decided to purchase OCPP long term because OCPP performed satisfactorily during the trial, not because Wilmington was convinced by Grace's promotional statements. It is likely that Valero's own experience and analysis of the GWA and OCPP promoters was the ultimate driver in Valero's decision to purchase OCPP long term.

Finally, the Court does not find that Grace's comparative-performance claims—the only challenged advertising claims sent to Wilmington—caused GWA to lose any goodwill with that

refinery.⁴⁸

b. *Valero-Memphis*

Valero-Memphis (“Memphis”) conducted a trial of GFP in August 2019. (See PTX 349; Vols. IV at 135–36, V at 51–52 (Aru).) The trial was “successful,” at least in GWA’s eyes, and it “defeated a competitor’s promoter,” which Mr. Aru thinks was “a JM product.” (Vol. IV at 135–36; *see also* PTX 349.) The record is not clear on how long after August 2019 Memphis continued buying GFP, but a May, 18, 2020, presentation from GWA to Memphis suggests that it was still buying GFP at least as of that date. (See generally PTX 349.)

On January 14, 2021, an FCC engineer at Memphis reached out to Grace’s Valero account manager, John Aikman, inquiring about the possibility of doing a trial run of Grace’s combustion promoter. (PTX 96 at 2; Vol. III at 164–65 (Baillie).) That same day, Mr. Aikman emailed Dr. Baillie, stating:

For the record, we never pushed or recommended a promoter trial for Memphis. What we communicated is that we were doing a trial at Wilmington. They are considering a loader lease at Memphis and were concerned about us not having a competitive product to Guido’s lower cost promoter that they just successfully trialed. We told her that pending the outcome of the Wilmington trial we should have an option in the future.

(PTX 352 at 3.)

A Grace employee responded the following month by sending Memphis a “summary of

⁴⁸ Although people at the corporate level may have been “confused” and may have thought that GWA and Grace had the same technology (*see* Tierney Dep. at 38), it is not clear that this view filtered down to the refinery level. And in any event, logically any confusion about whether GWA and Grace had the same product cannot have come about from the comparative-performance claims, which state that Grace has a much *better* product than GWA’s. Instead, such confusion must have come from the claims in the PTQ Article that Grace’s new promoter has a high proportion of its noble metal on the outer surface (suggesting that Grace had an “eggshell”-style product like the GFP product). And yet, GWA has not sought any finding of liability with respect to these “outer surface claims.”

the Wilmington trials.” (PTX 96 at 1.) This summary included a chart making comparative-performance claims about a sixty-two- or sixty-four-percent improvement over GFP. (*Id.* at 7; Vol. III at 65.) That same month—February 2021—Memphis made its first purchase of CPP. (DTX 538.) It then switched over to OCPP in August of that same year. (*Id.*; *see also* Vol. II at 46 (Balko).) There is also evidence that Valero Memphis buys all or almost of its other FCC products from Grace, including the base catalyst and other additives.⁴⁹ (Vol. II at 49.)

This is the only relevant, Memphis-specific evidence. But there is just enough in the record to conclude that Memphis’s decision to trial CPP was influenced by Grace’s promotional materials. In reaching this finding, the Court finds particularly important the facts that (1) Memphis specifically requested information about Grace’s combustion promoter to support running a trial; (2) Grace sent the requested information, including the comparative-performance claims; and (3) Memphis decided to purchase CPP for the very first time that same month.

But there is a problem for GWA: it does not seek any disgorgement of profits for sales of CPP, only OCPP. (*See, e.g.*, ECF No. 339-1 at 5 (“Disgorgement of Grace’s profits from the falsely advertised Optimized CP®P until the record is corrected is thus the appropriate and lawful monetary remedy GWA respectfully seeks.”); ECF No. 340 at 25 (table of Grace profits from OCPP that GWA seeks to disgorge).) And as for OCPP, there is not enough evidence to conclude that Memphis’s decision to begin purchasing it in August was influenced by the Grace promotional materials sent in February. In the absence of other Memphis-specific communications, the Court

⁴⁹ The transcript at this point is slightly misleading in that it could be read as Mr. Balko saying, in effect, that Valero buys all its products *but* the base catalyst from Grace. However, the Court’s recollection from trial (as confirmed by the audio recording of the transcript) is that Mr. Balko was essentially saying, “Valero buys all of their other products—well, I don’t know about *all*, but certainly the base catalyst, which is 90 percent of their purchases.”

will not infer that Memphis decided to trial OCPP on the basis of a single promotional statement sent to that refinery half a year earlier. Instead, the Court finds it at least as likely that Memphis decided to trial OCPP because it was satisfied with CPP's performance and with its relationship with Grace.

H. *GRACE'S REVENUES AND COSTS*

Because the Court determines that Grace is not liable under the Lanham Act, *see infra* Part IV.A, it is not necessary to make factual findings relevant to the question of the amount of profits to disgorge.⁵⁰

IV. CONCLUSIONS OF LAW—LANHAM ACT

A. *ELEMENTS OF LANHAM ACT*

The Lanham Act prohibits, in relevant part, the “false or misleading description of fact, or

⁵⁰ Recognizing, however, that the issue was fully litigated at trial, that factual issues are best resolved when fresh in mind, and that an understanding of the Court's view of the matter may be helpful to the parties, in a context where they were germane, the Court would make the following findings. *Cf. Galderma Lab'ys, L.P. v. Sun Pharm. Indus. Ltd.*, 411 F. Supp. 3d 271, 297 (D. Del. 2019) (after a bench trial, making findings on issue that the court resolved on other grounds “in the interests of completeness, and recognizing all the work that has been done (by the parties and the Court) in th[e] case”).

Grace has compiled a spreadsheet that contains information on Grace's sales of combustion promoters. (See JTX 80; Vol. II at 42 (Balko).) As will be explained *infra* Part IV.B, the Court would conclude as a matter of law that the parties stipulated that JTX 80 contains Grace's COGS. In any event, even if the Court did not find the COGS to be stipulated, Grace nevertheless established what those costs were at trial. It is true that there was no testimony explaining how Grace arrived at its COGS evaluation or what specific costs Grace undertook in selling OCPP. But JTX 80 was received into evidence, and no evidence was adduced at trial that contradicted the accuracy of JTX 80. It is hardly fair to blame Grace for not putting on a more thorough evidentiary presentation on COGS, when it reasonably believed that the issue had been stipulated before trial.

Further, there was no evidence suggesting that this spreadsheet was not accurate; indeed, both parties agreed that it was accurate with respect to Grace's revenues. In the absence of any indication to the contrary, there is no reason for the Court to suppose that the data were accurate with respect to revenues, but inaccurate with respect to COGS.

Moreover, when the Court sits as a trier of fact, it is entitled to use its common sense, just as it regularly instructs jurors to do. It is all but certain that Grace incurred *some* costs in making and selling OCPP—after all, there was testimony from Dr. Francis explaining the process Grace uses to manufacture OCPP, and it is obvious that this process involved significant expenses in terms of, for example, labor and

false or misleading representation of fact, which . . . in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person's goods, services, or commercial activities." 15 U.S.C. § 1125(a)(1)(B).

A plaintiff asserting a false-advertising claim under the Lanham Act must establish that:

(1) the defendant made a false or misleading description of fact or representation of fact in a commercial advertisement about his own or another's product; (2) the misrepresentation is material, in that it is likely to influence the purchasing decision; (3) the misrepresentation actually deceives or has the tendency to deceive a substantial segment of its audience; (4) the defendant placed the false or misleading statement in interstate commerce; and (5) the plaintiff has been or is likely to be injured as a result of the misrepresentation, either by direct diversion of sales or by a lessening of goodwill associated with its products.

Verisign, Inc. v. XYZ.COM LLC, 848 F.3d 292, 298–99 (4th Cir. 2017) (citation omitted). “[A]t least one statement must satisfy all five elements to constitute a Lanham Act violation.” *De Simone v. Alfasigma USA, Inc.*, 847 F. App’x 174, 182 (4th Cir. 2021). A plaintiff bringing a Lanham Act

equipment costs. Grace does not possess some kind of alchemical formula allowing it to conjure up OCPP out of nothing. Thus, although the proof on this issue is not overwhelming, the Court would find that Grace has met its burden of proving that the COGS Grace incurred are accurately reflected in the spreadsheet.

Grace’s revenues from 2020 through 2024 from OCPP are not in dispute. (See JTX 90; ECF No. 333 (jointly stipulating that JTX 90 reflects Grace’s revenues from OCPP, itemized by month and by refinery, through December 31, 2024).) For the first five months of 2025, the Court would agree that it is appropriate—as a rough measurement in the absence of better information—to simply multiply the 2024 figures by five twelfths. (Vol. VIII at 97 (Tregillis); *see also* JTX 91 (containing the projections of Grace OCPP revenues for 2025 according to this formula).)

When one subtracts COGS from revenue, the resulting amount is gross profit. (Vol. VIII at 63 (Schenk).) Grace’s revenue from OCPP sales to the refineries at issue in this litigation during the relevant time period is \$14.9 million. (Vol. VIII at 72 (Schenk).) Grace’s profits from these sales were \$6.4 million. (*Id.*) Grace’s gross profit margin for OCPP sales (obtained by dividing the gross profits by the revenue) during the relevant time period was 43.1 percent. (Vol. VIII at 72–73.) GWA’s damages expert agreed. (Vol. VIII at 96 (Tregillis).)

Accordingly, the Court would find that—if any profits were to be disgorged—Grace has proven its COGS, and accordingly any disgorgement should be limited to 43.1 percent of gross profits.

false-advertising claim must establish the elements of the claim by a preponderance of the evidence. *See, e.g., World Wide Ass'n of Specialty Programs v. Pure, Inc.*, 450 F.3d 1132, 1140 (10th Cir. 2006); *Novartis Consumer Health, Inc. v. Johnson & Johnson-Merck Consumer Pharms. Co.*, 290 F.3d 578, 590 (3d Cir. 2002); *McNeil-P.C.C., Inc. v. Bristol-Myers Squibb Co.*, 938 F.2d 1544, 1548–49 (2d Cir. 1991); *Black & Decker (U.S.) Inc. v. Pro-Tech Power, Inc.*, 26 F. Supp. 2d 834, 861–62 (E.D. Va. 1998).

Somewhat confusingly, the first element lumps together two separate concepts: (a) that the speech be false or misleading and (b) that the speech constitute “commercial advertisement.” “The Lanham Act does not define ‘commercial advertising or promotion.’” *Handsome Brook Farm, LLC v. Humane Farm Animal Care, Inc.*, 700 F. App’x 251, 256 (4th Cir. 2017). For purposes of the Lanham Act, courts have defined commercial advertising as (1) “commercial speech” (2) by an entity “in commercial competition” with the claimant, (3) made “for the purpose of influencing consumers to buy goods or services,” and (4) “sufficiently disseminated to the relevant purchasing public to constitute advertising or promotion within th[e parties’] industry.” *Id.*; *see also De Simone v. VSL Pharms., Inc.*, 36 F.4th 518, 532 (4th Cir. 2022).

The Court held at summary judgment that all challenged promotional materials constituted commercial speech and were placed in interstate commerce. *GWA II*, 761 F. Supp. 3d at 871. The Court also found that the comparative-performance claims were literally false (and thus, as a matter of law, deceptive). *Id.* at 871–72. Further, there is no dispute that the parties were in commercial competition, and that all challenged statements were made for the purpose of influencing sales.

1. Whether NOx Claims in Emails Constituted Commercial Advertising

The parties disagree about whether the test-validated NOx claims, which were not featured in the PTQ Article but instead appeared in OCPP data sheets and other individual outreach, were

adequately disseminated. (Grace does not dispute that the *comparative-performance claims*, by contrast, were adequately disseminated by means of the PTQ Article.)

The Lanham Act does not reach every statement made in the context of sales or marketing. To meet the dissemination requirement, the statements must have been made as “part of an organized campaign to penetrate the relevant market.” *Handsome Brook*, 700 F. App’x at 262. There is no bright-line rule as to what portion of a market must receive a statement for it to be considered actionable under the Lanham Act. “Widespread market distribution” is not necessary; personalized promotional materials sent to a targeted subset of customers may suffice. *Id.* (citing *Grubbs v. Sheakley Grp.*, 807 F.3d 785, 801 (6th Cir. 2015)). But a showing of a sporadic or one-off series of messages sent to a small number of customers will not. *See IHS Global Ltd. v. Trade Data Monitor, LLC*, Civ. No. 18-1025, 2021 WL 2134909, at *12 (D.S.C. May 21, 2021) (finding communications not to be sufficiently disseminated when they were sent to only nine customers, who collectively comprised less than one percent of the sender’s total customers). Nor will one-off, individually tailored messages sent in response to consumer inquiries. *See id.*

The test-validated NOx claims, which were made in OCPP data sheets and sometimes embedded in customer presentations, were sufficiently disseminated to be actionable under the Lanham Act. The record reflects that these statements were sent to customers at CHS-Laurel, CVR-Wynnewood, Delek, Marathon, PBF-Chalmette, Shell-Pernis, Suncor, United-Warren, and Valero. Marathon and Valero alone own or operate nearly a quarter of all FCC units in the country. Taken together, a large minority of FCC units throughout the United States received the promotional materials. Grace protests that the analysis should be the worldwide market, and that, when looking through that lens, only a small percentage of customers got communications. However, the law is clear that an organized campaign targeting a significant subset of customers

is sufficient. *See Handsome Brook*, 700 F. App'x at 262 (holding that an email “sent to thirty-six major retailers” who were considering switching to a competitor was sufficiently disseminated, even though many retailers were not included on the email). Moreover, Dr. Baillie prepared the OCPP data sheets contemporaneously with the drafting of the PTQ Article and the Grace blog post, and he expected that the data sheets would be widely shared with customers as part of Grace’s campaign to promote its new combustion promoter and edge out GWA. The record reflects that this expectation was borne out.

2. Falsity of Test-Validated NOx Claims

The Court has previously discussed the legal framework for evaluating falsity under the Lanham Act:

To establish the falsity element, a plaintiff may either show that the statement is “literally false,” or else that the statement is “impliedly false,” meaning that the statement, “although literally true, [is] likely to mislead and to confuse consumers given the merchandising context.” *PBM Prods., LLC v. Mead Johnson & Co.*, 639 F.3d 111, 120 (4th Cir. 2011) (citation omitted). If the plaintiff can show that the statement is literally false, then “a violation may be established without evidence of consumer deception.” *Id.* (citation omitted). But if the statement is merely impliedly false, then the plaintiff “must demonstrate, by extrinsic evidence, that the challenged [advertisements] tend to mislead or confuse consumers.” *Id.* (citation omitted) (alteration in original).

GWA II, 761 F. Supp. 3d at 843–44 (alterations in original).

At trial, and throughout the life of this case, GWA has proceeded solely on a theory of literal falsity. When a challenged claim “purport[s] to be validated by testing,” a plaintiff can establish literal falsity under a “slightly relaxed” test:

When an advertising claim of favorable fact either expressly or impliedly asserts that the fact is test or study-validated, the fact of the validation becomes an integral and critical part of the claim. Such a claim may therefore be proven literally false by showing only that the test asserted to validate it did not in fact do so. On the other hand, where the claim is made baldly, with no assertion of test or study validation, its literal falsity may only be proven by proof that the favorable fact

baldly asserted is false.

GWA II, 761 F. Supp. 3d at 844 (quoting *C.B. Fleet Co. v. SmithKline Beecham Cons. Healthcare, L.P.*, 131 F.3d 430, 435 (4th Cir. 1997)). “Claims purporting to be test-validated are sometimes referred to as ‘tests prove’ or ‘establishment’ claims.” *Id.* (citing *Osmose, Inc. v. Viance, LLC*, 612 F.3d 1298, 1309 (11th Cir. 2010)).

To begin, the Court rejects GWA’s argument that, because the test-validated NOx claims were based on the 2009–2011 RTU study, “Grace’s NOx claims were not validated by *any* data and are thus literally false.” (ECF No. 339-1 at 10 (emphasis in original).) The RTU study included data on at least one batch of combustion promoter that was materially identical to modern-day OCPP. Moreover, the Court is not aware of any reason why it would be *per se* unacceptable for Grace to rely on decade-old data to support its claims. After all, GWA has not presented any reason to think that the underlying science has changed such that the RTU study is now obsolete. And although Grace’s promotional statements arguably *implied* that its testing was recent and conducted on actual commercial OCPP samples (as opposed to test samples that were functionally equivalent), misleading implications will generally not support a finding of literal falsity. *See Design Res., Inc. v. Leather Indus. of Am.*, 789 F.3d 495, 502 (4th Cir. 2015). Furthermore, the Court has found that GWA failed to prove that the RTU study did not support Grace’s claims that OCPP was likely to yield reduced NOx emissions. As for GWA’s more detailed claim about alleged “manipulation” of data in product sheets sent to certain customers, this argument is not based on trial testimony but relies almost entirely on post-trial arguments, and as such there is insufficient evidence *in the record developed at trial* to persuade the Court that these statements were false.⁵¹

⁵¹ The Court disapproves of GWA’s drive-by approach to evidence wherein a document is mentioned and fleetingly shown during trial, and then in post-trial briefing counsel make elaborate arguments about

3. Materiality

a. *Whether GWA Must Prove Materiality for Literally False Claims*

As the Court previously noted, “[t]here is a circuit split on the question of whether a false advertising plaintiff must demonstrate materiality when a challenged statement is literally false, and it does not appear that the Fourth Circuit has addressed the issue.” *GWA II*, 761 F. Supp. 3d at 852. But, because GWA has never argued that it is *not* required to show materiality—and indeed has argued at length as to why it believes the challenged advertisements *were* material—GWA has implicitly but unmistakably waived any argument that it need not show materiality. In any event, after reviewing the out-of-circuit appellate caselaw, the Court finds more persuasive the majority view that a Lanham Act plaintiff must always prove materiality. *See, e.g., Select Comfort Corp. v. Baxter*, 996 F.3d 925, 940 (8th Cir. 2021); *Time Warner Cable, Inc. v. DIRECTV, Inc.*, 497 F.3d 144, 153 & n.3 (2d Cir. 2007); *Johnson & Johnson Vision Care, Inc. v. 1-800 Contacts, Inc.*, 299 F.3d 1242, 1250 (11th Cir. 2002); *Cashmere & Camel Hair Mfrs. Inst. v. Saks Fifth Ave.*, 284 F.3d 302, 312 n.10 (1st Cir. 2002). *Contra Pizza Hut, Inc. v. Papa John’s Int’l, Inc.*, 227 F.3d 489, 497 (5th Cir. 2000).

the document that are completely divorced from the testimony that counsel adduced about the document at trial. *See Jadian, Inc. v. Nat'l Quality Assurance USA, Inc.*, Civ. No. 17-907, 2020 WL 3071756, at *11 (W.D. Mich. June 10, 2020) (“It is axiomatic that post-trial submissions are not the time to craft entirely new arguments or theories that were not presented at trial and are based on documents and other evidence that was not a part of the final pretrial order or presented at trial”), *aff’d on other grounds sub nom. Epazz, Inc. v. Nat'l Quality Assurance USA, Inc.*, No. 20-1552, 2021 WL 3808946 (6th Cir. Aug. 26, 2021). The truth-seeking function of a trial works only when testimony is fully developed and subject to cross-examination and the presentation of contrary evidence. *Cf. California v. Green*, 399 U.S. 149, 158 (1970) (“[C]ross-examination[] [is] the ‘greatest legal engine ever invented for the discovery of truth’” (citation omitted)). By raising a new argument in post-trial briefing that is totally unrelated to testimony developed at trial, GWA has made it impossible for Grace effectively to respond, and thus impossible for the Court to critically evaluate the argument. It is too late in the day to raise this argument now.

b. Legal Standard for Materiality

For purposes of a Lanham Act false-advertising claim, a statement is material when it is “likely to influence the purchasing decision.” *Verisign*, 848 F.3d at 298 (citation omitted). Relevant considerations include (1) “consumer motivation,” which considers the importance of the misrepresented product or service; (2) “consumer reliance, which considers how a misrepresentation is used”; and (3) “consumer concern, which considers the extent to which a misrepresentation departs from the facts.” 4 *McCarthy on Trademarks and Unfair Competition* § 27:35 (5th ed. 2025) (quoting Vincent N. Palladino, *Lanham Act “False Advertising” Claims: What Is a Plaintiff to Do?*, 101 Trademark Rep. 1601, 1626 (2011)).

c. Materiality of the Comparative-Performance Claims

The question of materiality for the comparative-performance claims is a close one. On balance, the Court is persuaded that these statements *were* material, but in a narrow sense—namely, that they were likely to influence a refinery’s decision to trial OCPP, but not likely to influence the decision to make a long-term purchase.

To begin, the Court does not reach its materiality determination simply because the statements relate to inherent qualities of combustion promoters. GWA relies heavily on the district court’s statement in *De Simone v. VSL Pharmaceuticals, Inc.* that statements are “plainly material” when they “relate[] to an ‘inherent quality or characteristic.’” 395 F. Supp. 3d 617, 627 (D. Md. 2019) (quoting *Cashmere*, 284 F.3d at 311–12). GWA appears to take *De Simone* to stand for the proposition that statements relating to a product’s inherent quality or characteristic are material as a matter of law. (See ECF No. 339-1 at 42.) But the Court does not read *De Simone* so broadly. The *De Simone* decision came in the context of cross-motions for judgment as a matter of law filed after the conclusion of a jury trial. 395 F. Supp. 3d at 622. In reviewing the evidence, the court

held that the jury reasonably concluded that certain challenged statements were material, based in part on the fact that the statements pertained to a product’s inherent qualities. *See id.* at 627–28.⁵² Evidence that a challenged statement is an inherent-quality statement may be enough to sustain a finding of materiality, but it does not on its own, mandate such a finding.

The Court also does not find materiality simply on the basis that Grace *hoped* that its advertisements would influence consumers. GWA, seeking to emphasize the importance of Grace’s advertisements, asks, “if customers were going to buy Grace’s products regardless, why did Grace target them with the false ads?” (ECF No. 340 at 6.) Clearly Grace must have expected some benefit from its advertisements; the Court would not lightly conclude that Grace views its own advertisements as a waste of money. *See Ill. Tool Works, Inc. v. Rust-Oleum Corp.*, 955 F.3d 512, 515 (5th Cir. 2020) (“That Rust-Oleum thought its advertising was important or would generate profits is a truism. Companies obviously hope that advertising will be a boon to business.”). Here, advertisements do play a role in the sales of combustion promoters. There is a difference, however, between finding that advertisements “lead to prospects” in the relevant market and finding that the advertisements were “likely to influence any purchasing decision.” *Allen Organ Co. v. Galanti Organ Builders, Inc.*, 798 F. Supp. 1162, 1169–70 (E.D. Pa. 1992), *aff’d*, 995 F.2d 215 (3d Cir. 1993) (unpublished table opinion). As Grace points out, if the Court accepted the premise implicit in GWA’s question, then “all advertising would be material by

⁵² This is consistent with the First Circuit’s decision in *Cashmere*. There, the court held simply that a plaintiff *established a triable issue* by producing evidence that the advertisements related to the inherent quality or characteristic of the product. 284 F.3d at 307–08, 311–13. The *Cashmere* court did not hold that the advertisements were material as a matter of law.

In any event, this Court’s summary-judgment opinion implicitly decided the issue. The Court cited to *De Simone* for the proposition that Grace’s advertisements “may” be material, then went on to state that materiality is a question of fact to be decided at trial. *See* 761 F. Supp. 3d at 852–53.

definition.” (ECF No. 341 at 11.) That cannot be a correct result under the law. Nevertheless, although Grace’s hopes for the impact of its advertising are not dispositive, these intentions are highly relevant insofar as they reflect the outcomes that seasoned industry insiders expected from the advertisements.

Moreover, numerous courts have found an absence of materiality in Lanham Act false-advertising cases when the target audience consisted of sophisticated individuals who were unlikely to be swayed by promotional materials. *See, e.g., TRUSTID, Inc. v. Next Caller, Inc.*, No. 2022-1433, 2023 WL 2298748, at *1, 4 (Fed. Cir. Mar. 1, 2023) (affirming judgment as a matter of law of no materiality because, *inter alia*, the customers “performed their own independent testing” before purchasing); *Reed Constr. Data Inc. v. McGraw-Hill Cos.*, 638 F. App’x 43, 45–46 (2d Cir. 2016) (affirming holding of no materiality when, in part, “customers . . . conducted independent evaluations” before purchasing, and where “the market of sophisticated consumers relying largely on face-to-face sales was unmoved,” despite the defendants’ “great enthusiasm” for their own ad campaign); *Overjet, Inc. v. VideahHealth, Inc.*, Civ. No. 24-10446, 2024 WL 3480212, at *12 (D. Mass. July 19, 2024) (finding plaintiff was unlikely to succeed on materiality element where the defendant “s[old] its products to sophisticated consumers” who “likely ha[d] the scientific and technological understanding to fully appreciate [the defendant’s] product offering and its limitations”); *Suntree Techs., Inc. v. EcoSense Int’l, Inc.*, 802 F. Supp. 2d 1273, 1288 (M.D. Fla. 2011) (granting partial summary judgment for defendant on issue of materiality, explaining that buyers were “engineers who look[ed] at product specifications, not advertisements”); *Labware, Inc. v. Thermo Labsystems, Inc.*, Civ. No. 04-2545, 2005 WL 1541028, at *11 (E.D. Pa. June 29, 2005) (after a bench trial, finding no materiality as to technically sophisticated customers who would analyze products before buying them); *cf.* 4 McCarthy on Trademarks and Unfair

Competition § 27:35 (“Where an expensive product is sold by personal contacts, misleading claims in a sales brochure may not have a tendency to deceive or influence purchasing decisions and hence not be a violation of § 43(a).”).

These cases have applicability here, but only to a point. True, the evidence overwhelmingly demonstrates that refineries insist on performing their own trials of combustion promoters before making a long-term purchase. For that reason, advertisements and promotional materials are not material to the *long-term* purchasing decision, because that decision rests almost entirely on the results of the trial.

But even a trial run of a combustion promoter represents a sale, albeit a small one. And the evidence shows that promotional materials—in conjunction with in-person sales meetings and other tactics—are likely to influence the decision to at least try out a new product. There is no doubt that the issues raised by the comparative-performance claims—usage rates (and, by necessary implication, daily cost) and afterburn control—are among the most important factors to buyers of combustion promoters. Although the refineries would not likely take these claims at face value, the evidence shows that most refineries have no way to independently evaluate claims in advertising other than by making a small purchase for the purpose of running a trial. And *that* purchasing decision—whether to buy a trial period of a combustion promoter—is informed in part by what Grace tells potential customers in its promotional materials. Finally, although the exact scale of the errors in the comparative-performance claims is unclear, Grace’s own communications suggest that they were overstated by at least a factor of two. (*Compare* JTX 1 at 2 (claiming sixty-four-percent improvement of OCPP versus GFP), *with* PTX 67 at 8 (claiming thirty-percent improvement).) This was no minor misstatement; instead, Grace’s comparative-performance claims were simply wrong, perhaps extremely wrong. *See* Palladino, *supra*, at 1630 (noting that

materiality considers “the extent to which the misrepresentation departs from the facts”).

In arguing for a finding of no materiality, Grace emphasizes that no witness ever testified that Grace’s advertisements had any effect on their purchasing decision, and that statements attesting to the materiality of the advertisements were cast in hypothetical terms. The argument has force, and certainly GWA would have a far stronger case for materiality if it could point to a single witness who testified to being actually influenced by Grace’s advertisements.

But the lack of any such evidence does not preclude a materiality finding. Although no witness testified to being influenced, the Court infers from the evidence that the advertisements were likely to influence purchasers’ decision to run a trial. It is important to keep the elements of materiality and injury analytically distinct. Materiality, properly understood, asks whether the false statements were of the kind that would likely influence a relevant buyer’s purchasing decision. *See Cashmere*, 284 F.3d at 313 (holding that, to establish materiality, “plaintiffs are not required to present evidence that defendants’ misrepresentation actually influenced consumers’ purchasing decisions, but that it was *likely* to influence them” (emphasis in original)). Whether the statements actually led to a diversion of sales or a loss of goodwill is a question that falls squarely within the injury analysis. *Verisign*, 848 F.3d at 300.

After considering all the evidence, the Court finds that GWA has succeeded—on a close call—in showing that the comparative-performance claims were likely to influence a refinery’s purchasing decision, but only for the purposes of a trial run. They are therefore material to that extent.

d. *Materiality of the Test-Validated NOx Claims*

GWA has not shown the falsity of the basic claim that OCPP is likely to yield lower NOx emissions than CPP. But even assuming that the Court found some of the more detailed

“manipulation” claims to be false, there is no showing—and certainly not by a preponderance of the evidence—that they were material. Although plenty of evidence shows that controlling NOx emissions is an important consideration for purchasers, there is no evidence in the record to suggest that customers would have cared about minor discrepancies in charts they received. Minor factual errors or trivial discrepancies are not material, at least where there is no evidence suggesting that customers cared about these issues. *See J-B Weld Co., LLC v. Gorilla Glue Co.*, 978 F.3d 778, 798 (11th Cir. 2020) (holding that a plaintiff failed to show that misstatements about the chemical composition of a product were material when it failed to show that “these differences would matter to a consumer”); *see also* Palladino, *supra*, at 1631 (“Absent contrary evidence, [courts] generally infer that consumers would be unlikely to care about a misrepresentation that departs from the facts to a trivial degree.”).

4. Injury

a. Legal Standard for Injury

“To invoke the Lanham Act’s cause of action for false advertising, a plaintiff must plead (and ultimately prove) an injury to a commercial interest in sales or business reputation proximately caused by the defendant’s misrepresentations.” *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 572 U.S. 118, 140 (2014). In other words, a plaintiff must show injury either in the form of a diversion of sales or a lessening of goodwill. *Verisign*, 848 F.3d at 298–99.

This much neither party disputes. But they disagree sharply on what showing GWA must actually make. According to GWA, because it seeks disgorgement (an equitable remedy) rather than damages, it need not prove “actual damages, only a likelihood of injury.” (ECF No. 339-1 at 45.) Grace disagrees, arguing that GWA “was required to prove not only an actual injury in the form of loss of goodwill or diversion of sales, but also that the injury was caused by” the challenged

advertising.⁵³ (ECF No. 337 at 36 (emphasis omitted).)

It is true that cases state that the injury element looks to whether a plaintiff “has been or is likely to be injured.” *Verisign*, 848 F.3d at 300 (quoting *Design Res.*, 789 F.3d at 501). Likewise, the statute itself provides that a false advertiser “shall be liable in a civil action by any person who believes that he or she is *or is likely to be* damaged by such act.” 15 U.S.C. § 1125(a)(1).

But the Supreme Court has implicitly warned against reading the Lanham Act’s “broad language” too liberally. *See Lexmark*, 572 U.S. at 132. It is best to read the likelihood language as referring to situations in which plaintiffs seek prospective injunctive relief against ongoing or forecasted false advertising. *See PBM Prods.*, 639 F.3d at 126–28 (affirming entry of permanent injunction under the Lanham Act when the district court found it necessary to prevent the defendant from disseminating future false advertisements).⁵⁴ GWA has not pointed to—nor is the Court aware of—any case in which a court awarded retrospective monetary relief (whether legal or equitable in nature) on the basis that, in the past, an advertisement was merely likely to injure the plaintiff. Instead, the cases insist that whenever a plaintiff seeks to invoke the Lanham Act to remedy a past violation, it must show that the violation proximately caused an actual injury. *See*

⁵³ That the parties are so far apart on this issue is not (or at least not only) a reflection of their adversarial relationship. Lower-court cases on the Lanham Act’s injury and causation requirements do not speak with the clarity and unanimity that might be desired. The Court has endeavored to run a thread through the caselaw in a way that is faithful both to the text of the Lanham Act and to binding Supreme Court and Fourth Circuit precedent.

⁵⁴ GWA does seek an injunction barring Grace from future false advertising, although both parties seem to treat the injunction request as a bit of an afterthought. To obtain injunctive relief, GWA must show either that the injury is ongoing (which is a type of “actual” injury) or imminent. *See TransUnion LLC v. Ramirez*, 594 U.S. 413, 435 (2021); *Deal v. Mercer Cnty. Bd. of Educ.*, 911 F.3d 183, 188 89 (4th Cir. 2018). For injunctive relief, a showing of a likelihood of injury may suffice—but it must be a likelihood of *future* injury, not that a plaintiff stood a likelihood of injury at some point in the past. *See PBM Prods.*, 639 F.3d at 127 (affirming injunction meant to prevent the defendant from “infecting the marketplace with the same or similar claims in different advertisements in the future” (citation omitted)).

Lexmark, 572 U.S. at 140; *see also Wall & Assocs., Inc. v. Better Bus. Bureau of Cent. Va., Inc.*, 685 F. App'x 277, 279 (4th Cir. 2017) (affirming dismissal of a false-advertising claim when the complaint “d[id] not identify a single consumer who withheld or cancelled business with [the plaintiff] or point[] to a particular quantum of diverted sales or loss of goodwill and reputation resulting directly from reliance on any false or misleading representations by Defendants”).

Indeed, the Supreme Court has insisted that such a showing of actual injury is necessary to ensure Article III standing to bring suit for retrospective relief in the first place. It is a basic requirement of standing that a plaintiff suing in federal court must suffer an “injury in fact” that is “actual or imminent, not conjectural or hypothetical.” *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 560 (1992). And a plaintiff must show standing “for each form of relief sought.” *Friends of the Earth, Inc. v. Laidlaw Env't Servs. (TOC), Inc.*, 528 U.S. 167, 185 (2000). Thus, the requirement that a plaintiff seeking monetary relief for past harm have suffered an actual injury “is not a minor or technical element of a Lanham Act claim; indeed, as the Supreme Court has explained, it is the core requirement that a plaintiff ‘show economic or reputational injury flowing directly from the deception wrought by the defendant’s advertising’ that assures Article III standing in Lanham Act cases.” *See Verisign*, 848 F.3d at 299–300 (quoting *Lexmark*, 572 U.S. at 133). Stemming as it does from foundational jurisdictional principles, this requirement is not lessened when the financial remedy sought is equitable (e.g., disgorgement of ill-gotten profits) rather than legal (e.g., damages) in nature.⁵⁵ *See Dependable Sales & Serv., Inc. v. TrueCar, Inc.*, 394 F. Supp. 3d 368,

⁵⁵ To be precise, it is the “injury in fact” component that is constitutionally mandated. The requirement that this injury be *proximately* caused by the defendant is not dictated by Article III, which requires merely that the injury be “fairly traceable” to the defendant. *Lexmark*, 572 U.S. at 134 n.6. The requirement that a plaintiff’s injuries be proximately caused by the defendant’s violation of the statute is simply a common-law rule that—in the absence of evidence to the contrary—courts presume Congress intended to be applicable. *See id.* at 132.

375 (S.D.N.Y. 2019) (holding that a Lanham Act plaintiff seeking disgorgement must establish “actual injury” to be entitled to relief, and granting motion to reconsider earlier ruling, 377 F.Supp.3d 337 (S.D.N.Y. 2019), that held to the contrary).

GWA is correct, in a limited sense, that it need not prove “actual damages” to establish liability. *See De Simone*, 395 F. Supp. 3d at 628–29, *aff’d sub nom. Alfasigma*, 847 F. App’x. But “actual damages” is a legal term of art, and the absence of “actual damages” is not the same as the absence of an actual injury. The Court reads the caselaw to state only that a Lanham Act plaintiff seeking equitable monetary relief need not prove the *specific dollar amount* of harm it suffered—not that the actual-injury requirement is waived altogether. *See Lexmark*, 572 U.S. at 135–36 (“Even when a plaintiff cannot quantify its losses with sufficient certainty to recover damages, it may still be entitled to injunctive relief under § 1116(a) (assuming it can prove a likelihood of future injury) or disgorgement of the defendant’s ill-gotten profits under § 1117(a).”); *George Basch Co. v. Blue Coral, Inc.*, 968 F.2d 1532, 1540 (2d Cir. 1992) (“While damages directly measure the plaintiff’s loss, *defendant’s* profits measure the defendant’s gain.” (emphasis in original)); *Gravelle v. Kaba Ilco Corp.*, 684 F. App’x 974, 981 (Fed. Cir. 2017) (rejecting the argument that a plaintiff “need not show an actual injury because the Lanham Act provides for disgorgement of profits,” and distinguishing injury from damages); *cf. Logan v. Burgers Ozark Country Cured Hams Inc.*, 263 F.3d 447, 463 (5th Cir. 2001) (“While Logan did not prove damages with particularity sufficient to prompt the jury to find that he had established actual losses because of the false advertising, there was sufficient evidence from which the jury could have inferred that he was in some way injured.”). To the extent that some older, out-of-circuit cases could be read to suggest that a plaintiff can secure monetary relief under the Lanham Act without showing that it suffered an actual injury, *see, e.g.*, *Web Printing Controls Co. v. Oxy-Dry Corp.*, 906 F.2d 1202,

1204–05 (7th Cir. 1990), the Court declines to follow their approach.⁵⁶

Finally, as the Court has previously observed, Section 35(a) of the Lanham Act provides that, “once the plaintiff has established liability in a false advertising action, it is generally entitled to recover (1) the defendant’s profits derived from the false advertising, (2) any damages it suffered, and (3) the costs of the action.” (ECF No. 270 at 17 (citing 15 U.S.C. § 1117(a)).) The statute then shifts the burden to the defendant to “prove all elements of cost or deduction claimed.” 15 U.S.C. § 1117(a). This burden-shifting framework must be harmonized with *Lexmark* and the basic requirement that a plaintiff in federal court must always prove injury in fact. Thus, the provision means at most that, if, but *only if*, a disgorgement-seeking plaintiff has persuaded the factfinder that it suffered *some* injury proximately caused by the defendant’s false advertising, *then* the burden shifts to the defendant to prove that certain sales were not attributable to that false advertising. *See Rexall Sundown, Inc. v. Perrigo Co.*, 707 F. Supp. 2d 357, 359 (E.D.N.Y. 2010) (“[W]here the plaintiff proves all elements on the issue of liability (*including causation*) and establishes that it is entitled to disgorgement of the defendant’s profits, the plaintiff bears the burden of showing only the sales of the violative products.” (emphasis added)); *see also Dewberry Eng’rs Inc. v. Dewberry Grp.*, 77 F.4th 265, 290 (4th Cir. 2023) (“After [plaintiff] established [defendant]’s infringing revenues, the burden shifted to [defendant] to present revenues unrelated

⁵⁶ GWA cites to an Eleventh Circuit case observing that “[t]he Lanham Act permits recovery of profits because actual damages are often difficult to prove. It ‘shifts the burden of proving economic injury off the innocent party, and places the hardship of disproving economic gain onto the infringer.’” *Hard Candy, LLC v. Anastasia Beverly Hills, Inc.*, 921 F.3d 1343, 1353 (11th Cir. 2019) (quoting *George Basch*, 968 F.2d at 1549). *Hard Candy* must be read in harmony with *Lexmark*’s admonition that a Lanham Act plaintiff seeking monetary relief must plead and prove actual injury proximately caused by the defendant’s conduct. So, the Court understands this passage from *Hard Candy* to stand for only the propositions that a plaintiff (1) need not prove the specific dollar amount of losses it suffered and (2) need not prove *economic* harm at all, because non-economic harms, such as a loss of goodwill, are sufficient.

to the infringement and the costs that should be deducted.”), *vacated and remanded on other grounds*, 604 U.S. ___, 145 S. Ct. 681 (2025); *Vitamins Online, Inc. v. Heartwise, Inc.*, 71 F.4th 1222, 1244 (10th Cir. 2023) (noting that a Lanham Act plaintiff still must “show some connection between the identified sales and the alleged infringement” and is not “presumptively entitle[d]” to all a defendant’s profits even after establishing liability (citation and internal quotation marks omitted)). Even on this reading, then, the burden always starts with the plaintiff to prove in the first instance that the defendant’s actions proximately caused an injury, either in the form of a diversion of sales or a diminution of goodwill. In other words, a plaintiff can unlock the doors to the Lanham Act’s favorable burden shift only *after* it has first proved that it suffered an injury proximately caused by the defendant’s violation. *Lexmark*, 572 U.S. at 140 (“[A party] cannot obtain relief without *evidence* of injury proximately caused by [the defendant’s] alleged misrepresentations.” (emphasis in original)); *see Burndy Corp. v. Teledyne Indus., Inc.*, 748 F.2d 767, 773 (2d Cir. 1984) (holding that “an accounting based on unjust enrichment [was] precluded” when a Lanham Act plaintiff failed to show that sales were made “at [the plaintiff’s] expense”).

b. Application

Turning now to the facts of this case, GWA has failed to prove that it suffered an actual injury proximately caused by Grace’s false advertising. The Court reaches this conclusion even assuming, *arguendo*, that the test-validated NOx claims were false and material.⁵⁷

⁵⁷ Because the Court finds that GWA has failed to prove injury, it does not reach the question of whether Grace’s sales to the refineries in Chile and the Netherlands have a sufficient nexus with domestic activity to be actionable under the Lanham Act. The Court is persuaded that “the extraterritorial reach of the Lanham Act is a merits question that does not implicate federal courts’ subject-matter jurisdiction.” *Trader Joe’s Co. v. Hallatt*, 835 F.3d 960, 968 (9th Cir. 2016); *accord Now-Casting Econ., Ltd. v. Econ. Alchemy LLC*, 628 F. Supp. 3d 501, 518 (S.D.N.Y. 2022) (collecting cases); *IMAPizza, LLC v. At Pizza Ltd.*, 334 F. Supp. 3d 95, 121 (D.D.C. 2018). *But see Parsons v. Regna*, 847 F. App’x 766, 770 n.9 (11th Cir. 2021) (concluding that the court was bound by circuit precedent that the issue was jurisdictional while

To begin, the Court is not persuaded that Grace's advertisements injured GWA at all. As has been explained in detail *supra* Part III.G, with respect to all but arguably three refineries (CHS-Laurel, Shell-Pernis, and Valero-Memphis), the Court is not persuaded that Grace's advertisements had any substantial effect on the purchasing decision. More importantly, for all refineries, there is no showing—certainly not by the preponderance of the evidence—that the advertisements resulted in a diversion of sales from GWA to Grace. Nor did any purchaser testify that the advertisements caused them actually to think less of GWA or its products.⁵⁸

Even if GWA had shown actual injury, it has not shown proximate cause. At most, the Court can conclude that Grace's advertisements were one factor among many that may have

suggesting that the validity of this precedent is doubtful). Because the extraterritoriality question goes to the merits, the Court is not obligated to resolve it before considering the other elements of the Lanham Act.

⁵⁸ Although the Court determines that the appropriate legal standard is that GWA must prove that it was actually injured by Grace's advertising, the Court notes that its conclusions as to liability would be exactly the same if GWA were required merely to prove a past likelihood of injury.

To prevail, GWA must establish liability by a preponderance of the evidence, meaning it must be more likely than not that each element has been established. But what is the difference between saying it is more likely than not that GWA was injured, versus saying it is more likely than not that GWA was likely to be injured? Even granting that there might be a logical distinction between the two, it is hard to imagine a real-world situation where the distinction makes a difference.

In any event, in this particular case, GWA failed to prove that it was likely that it was injured by Grace's advertising to any of the challenged refineries. Likelihood of injury, after all, still means something more than a mere possibility of injury. And with respect to the refineries at issue, the Court can conclude only that it was *possible*, not likely, that Aru suffered a diversion of sales or a lessening of goodwill associated with GWA's comparative-performance claims.

Further, the Court notes that GWA has not raised the argument that it is entitled to a presumption of harm—assuming materiality has been established—because this is a two-player or otherwise “sparsely populated” market. *See Vitamins Online, Inc. v. Heartwise, Inc.*, 71 F.4th 1222, 1239 (10th Cir. 2023). The Fourth Circuit has not adopted this presumption, and the Court doubts it would be appropriate in this case in any event. The market for combustion promoters is certainly not limited to two players, and although it is “sparsely populated,” neither party has the biggest market share—JM does. More importantly, however, GWA has waived this argument by completely failing to raise it. It would not be appropriate—or fair to Grace—for the Court to *sua sponte* decide at this late stage that Grace has the burden of rebutting a presumption of injury, when both parties tried and argued this case on the understanding that GWA had the burden of proving injury.

contributed, in some attenuated sense, to GWA’s not having made sales to the refineries at issue. But that alone is not enough to satisfy the proximate-cause requirement. *See Paroline v. United States*, 572 U.S. 434, 446 (2014) (“[A] requirement of proximate cause is more restrictive than a requirement of factual cause alone.”); *see also CSX Transp., Inc. v. McBride*, 564 U.S. 685, 692 (2011) (“The term ‘proximate cause’ is shorthand for a concept: Injuries have countless causes, and not all should give rise to legal liability.”). And GWA has not bridged that gap. In each case, there were other reasons that independently made it likely that the refineries would have purchased from Grace despite the challenged advertisements, or that explain why a particular refinery did not purchase from GWA. There is no showing of proximate cause when the injury (if any) “might instead have resulted from ‘any number of other reasons.’” *Lexmark*, 572 U.S. at 140 (alteration accepted; citation omitted). Because any harm inflicted by the false advertising was “too remote” to explain why GWA did not make sales to each refinery, *see id.* at 133 (citation omitted), GWA has not met the causation requirement for recovery under the Lanham Act. Because the Court is not persuaded that GWA suffered *any* injury proximately cased by Grace’s false advertising, the burden never shifts to Grace to prove any elements of cost or deduction.⁵⁹

Finally, to the extent that GWA should be understood to argue that it is suffering ongoing harm or is imminently likely to suffer harm from Grace’s advertising (such as would justify forward-looking injunctive relief), the Court is not persuaded. Grace’s advertisements have not been retracted, but they are by this point several years old, there is no indication that they are continuing to have any effect on the present-day market, and there is no evidence that Grace is

⁵⁹ Even if Grace *did* have this burden, the Court would find that it met that burden with respect to all refineries, with the possible exception of Valero-Wilmington, by adducing evidence providing persuasive alternate explanations—unrelated to false advertising—for why Grace made sales and/or why GWA did not. (*See infra* Part III.G.)

currently disseminating the challenged advertisements or has any imminent plans to do so in the future. GWA does not argue otherwise.

GWA also cannot recover under a loss-of-goodwill theory. Although some witnesses testified that, hypothetically, they might think less of a competitor if they believed Grace's advertising, GWA has not adduced any testimony that persuades the Court that any buyer in the industry actually thought less of GWA because of Grace's advertising.⁶⁰

B. *REMEDIES*

Under the Lanham Act, when a defendant has been found liable for false advertising, the plaintiff "shall be entitled, . . . subject to the principles of equity, to recover (1) defendant's profits, (2) and damages sustained by the plaintiff, and (3) the costs of the action." 15 U.S.C. § 117(a). "In assessing profits the plaintiff shall be required to prove defendant's sales only; defendant must prove all elements of cost or deduction claimed." *Id.* The Court has discretion in the amount of recovery to be awarded, but in all cases the recovery "shall constitute compensation and not a penalty." *Id.*

There can be no remedy without a finding of liability. Having found Grace not to be liable, there is no need to reach the question of remedies.⁶¹

⁶⁰ The Court notes that the parties dispute whether GWA's answer to a Grace interrogatory during discovery waived any loss-of-goodwill theory of recovery. (See generally ECF Nos. 341–43.) The Court sees no need to decide this issue, there being a complete failure of proof at trial as to loss of goodwill.

⁶¹ The Court notes that, even if it were to find Grace liable, and even if it were to determine that disgorgement was an appropriate remedy under the applicable equitable factors, *see generally Dewberry Eng'rs*, 77 F.4th 265, the Court would (1) offset recovery by permitting Grace to deduct its COGS, *see supra* Part III.H, and (2) limit any recovery to the first month of profits.

As for COGS, the Court would find that Grace proved its COGS at trial, but moreover it would hold that GWA waived any objection to that finding by stipulating that GRACE_0523779 contains COGS. (Stip. 48.) GWA attempts to limit its stipulation by arguing that it merely stipulated that Grace "represents" that the document contains its COGS. This fails to persuade. Contrary to GWA's post-hoc rationalization at trial, GWA did not stipulate merely that Grace "represents" that the document contains the COGS.

V. CONCLUSION

GWA has not shown that OCPP infringes the '864 Patent. Judgment will be entered in Grace's favor on Count I.

Judgment will also be entered in Grace's favor as to Count II. The Court does not intend for this result to be an absolution of Grace's business practices. Grace's sales and marketing staff were happy to cherry-pick the most favorable data and make sweeping claims without rigorous attention to the facts, hoping to box out an upstart competitor—all while internal discussions showed that Grace knew that the product was probably not as effective as it made it out to be in advertisements.

But this Court is not a free-floating arbiter of right and wrong. In our system of government, the role of the federal courts is faithfully to apply the law and award relief only upon a finding of a violation. The Court does not endorse Grace's behavior that has come to light in this litigation, but at the same time it cannot and will not award relief to GWA when GWA has failed

Instead, the best reading of the sentence is that the non-restrictive clause beginning with “which Grace represents” applies to only the phrase “that it records and maintains in its ordinary course of business” and does not modify “metrics” or “document.” (*Id.*); *cf. Mumid v. Abraham Lincoln High Sch.*, 618 F.3d 789, 798–99 (8th Cir. 2010) (explaining the difference between restrictive and non-restrictive clauses). Thus, the Court would conclude that GWA did indeed stipulate that GRACE_0523779 contains COGS.

The reason for limiting any recovery to the first month is as follows. As the Court has noted, refineries almost always run trials before purchasing a product. *See supra* Section III.F.1. Even if Grace's advertisements were material to the decision to purchase for a trial run, and even if there were a likely diversion of sales from GWA, the decision to make a long-term purchase has essentially nothing to do with advertisements and everything to do with other considerations, most notably the performance of the promoter during the trial. The evidence shows that refineries do not always make a long-term purchase after running a trial, *see id.*, and thus the Court is not prepared to say that it is likely—as opposed to merely possible—that any refinery would have purchased GWA's product long-term even if the refinery ran a trial. Indeed, the record reflects several instances where refineries *had* trialed GWA's product but then decided to go with Grace or another competitor. *See id.* So, any award of profits beyond the first month of sales, which corresponds roughly to the trial period, *see id.*, would allow GWA to recover profits that are merely speculative. That would work an improper windfall to GWA. *See* 15 U.S.C. § 117(a) (providing that any award “shall constitute compensation and not a penalty”).

to show that Grace's actions caused it to lose any sales or suffer any diminution in goodwill. Put simply, whatever the ethics of Grace's actions, GWA has not shown that Grace's false advertising caused it any harm.

For these reasons, judgment on both counts will be entered in favor of Grace.

DATED this 19th day of August, 2025.

BY THE COURT:

/s/ JAMES K. BREDAR

James K. Bredar
United States District Judge